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TRANSACTIONS

OF THE

NEW YORK PATHOLOGICAL SOCIETY

VOLUME SECOND,

BASED ON THE PROCEEDINGS OF THE YEAR 1875, AND LARGELY SUPPLEMENTED FROM THE RECORDS OF 1844 TO 1877.

EDITED BY

JOHN C. PETERS, M.D.,

PRESIDENT OF THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK, ETC.

NEW YORK:

PRINTED FOR THE SOCIETY BY WM. WOOD & CO.

1877.

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The Editor thinks it right to state that the exhibitors and secretaries are alone responsible for the descriptions of the cases and specimens here published; the only changes being such condensations, and verbal and other alterations which seemed absolutely necessary.

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PREFACE.

THE Committee on Publication and the Editor take great pleasure in presenting, at this early date, the Second Volume of the Transactions of the New York Pathological Society to its members and the profession at large, indulging in the hope that it may meet with the same cordial and even flattering welcome from the medical press, at home and abroad, as greeted the first volume. They also hope, but not very confidently, that they shall be able to issue the third volume during the course of the summer of 1878, or at the latest in the year 1879.

Material, still more valuable than that already published, exists in abundance, and matured experience has suggested improvements upon the original plan, which will make our succeeding volumes still more useful to every studious and scientific practitioner who appreciates the advantages of exact pathology, correct diagnosis, and accurate clinical experience.

The Society has now done, in the way of publication, almost all that is advisable for the present; for two years at least; unless its subscription list is promptly increased. The accumulations in its treasury have never been large, while the character and elegance of the volumes, together with their very low price, has necessarily thrown the greater part of the cost upon the Society. Its funds can only be replenished quickly by the speedy sale of almost every copy of the two volumes already issued; and the committee appeal hopefully to every former and present member, and to every practitioner in New York, and every earnest student of the more recondite parts of his profession, for encouragement and patronage;

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with the hint, that the editions are so small, that he who delays long, may soon be unable to procure a copy.

The pithy and sterling work of the New York Pathological Society has always been abreast of that of its kindred associations; but, in the publication of its Transactions, in becoming volumes, it has always been backward. The London Pathological Society has already issued twenty-five volumes, and the Philadelphia Society six; while our third volume may be delayed from the above-mentioned causes. It should not, for only a small portion of the ten thousand cases and reports which have been presented to our Society have ever appeared in print, while a large part of those which have, are practically buried in numerous and some obscure medical journals. Many of these will always remain embalmed in our archives, and more must first be much condensed; but there will remain still a very large number of rare cases, some of them unique but well recorded, sufficient to make each volume which we may publish, a valuable book of reference in most of the great emergencies of medical and surgical practice, which may come home to every one, and also in the recognition of obscure diseases.

The experience of the Society in all the more formidable varieties of pathological disorder is very large indeed. In fact, it may almost be said that no disease, however apparently unique, has not its counterpart in our archives; few so rare that we cannot produce several examples of them; whilst those which are generally considered infrequent can often be shown by the score, or more.

We have given a sufficient number of cases in such full detail as to make the pathology and diagnosis of every disease clear; but, owing to the mass of material, much compression was necessary in many of the records. In these latter cases the important points only were brought out, but the whole has been arranged in convenient form for reference and the facilitating of research.

It is scarcely necessary to say that a most conscientious endeavor has been made to render strict and simple justice to every former

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and present member of the Society; the dead as well as the living; the active as well as the retired. All who have worked well, be they obscure, or widely known and honored, have been, or will be remembered.

It is hoped that the full table of contents, the careful headings of the pages, and the ample index will render the search for any information contained in the volumes easy and successful.

Since the publication of the first volume the hand of death has been laid heavily upon the Society. John O. Stone, Gurdon Buck, George Wilkes, Julius S. Thebaud, and Alpheus B. Crosby are now numbered on the long list of our honored dead.

Of the twenty-three original members, in 1844, thirteen are yet alive, and nine are still active members, viz.: Drs. Alonzo Clark, Thomas M. Markoe, John T. Metcalfe, Willard Parker, John C. Peters, Gustavus A. Sabine, Lewis A. Sayre, Isaac E. Taylor, and James R. Wood.

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REPORT OF CASES AND SPECIMENS

PRESENTED DURING THE YEAR 1875,

Supplemented by numerous similar cases from 1844 to 1877.

IV.—DISEASES, ETC., OF THE ORGANS OF DIGESTION.

DISEASES OF THE STOMACH—(*Continued.*) *

CASE 1. *The Cause of Perforating Ulcer of Stomach.*†

BY DR. EDWARD G. JANEWAY.

DR. JANEWAY presented a stomach from a patient 34 years of age, single, and admitted to Bellevue Hospital, September 30, 1870, in the service of Dr. McCready.

Her history was as follows: Five years ago she had hæmoptysis; two years ago she suffered from fits of vomiting and pain in the head; one year ago she had relapsing fever; two months ago became weak and unable to do her work. Three weeks ago had a chill lasting ten minutes, followed by fever, vomiting, and diarrhœa: she has vomited ever since that time, and was obliged to keep her bed. When admitted in the hospital was very weak, and vomited blood occasionally. October 5th, suffered from great pain in the abdomen, which became tympanitic. October 6th, pain increased by food, intense and limited to epigastric zone, which continued, until death occurred on the 9th day of October.

Autopsy.—Lungs.—Retraction, fibrous induration, and cheesy nodules affected each apex.

Abdomen.—A sac containing air, and a sour-smelling, black-

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* See Volume I., pp. 217 to 267. † Ibid., pp. 234 to 245.

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colored fluid, with a slight amount of pure solid contents, evidently ingesta from stomach, was situated in the epigastric and left hypochondriac regions. Its boundaries were a broad ligament of the liver; the edge of the left lobe of the liver, adherent to abdominal wall by recent exudation; a portion of the pyloric end of the stomach, also adherent; and the diaphragm.

Liver.—Enlarged, fatty, and its left lobe covered by recent exudation.

Stomach.—A little over half an inch from the pylorus, and along the greater curvature, is a circular opening in the walls of the stomach, one inch in diameter. This opening was closed to a certain extent by this round piece of stomach wall, which exactly fills the opening when stretched. It was black, and evidently dead tissue, retained in position by some slight attachments of the subperitoneal fat, which had a peculiar macerated appearance. The mucous membrane for half an inch around the ulcer had been destroyed, the submucous connective tissue and muscular coat being laid bare. Beyond this point, towards the cardiac extremity of the stomach, the mucous membrane was of a blackish color from hemorrhage, coated and infiltrated towards the outer part also by recent exudation (fibrinous). These changes included the entire circumference of the stomach for a distance of three inches.

An examination of the gastro-epiploic artery showed a distinct fibrinous plug, oblong, about one-eighth of an inch long, blocking the end of the artery towards the spleen, and prolonged by a tapering black thrombus of different date. In the necrosed portion of stomach the artery ran through fat tissue, was pervious to a bristle, but contained a macerated clot. The portion of artery towards the pylorus was permeable.

This case, then, is one of those rare ones in which we are enabled to see a necrosed portion of the stomach-wall, and a fibrinous plug looking very much like an embolus (though there was no point to which it could be traced), blocking its nutrient artery. The other organs were healthy, with exception of some evidences of peritonitis on the small and large intestines.

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V.—DISEASES, ETC, OF THE INTESTINES.

DISEASES OF THE DUODENUM—(*Continued.*)*

Case 1. *Closure of the Duodenum by Gall-Stones.*

By Dr. Metcalfe, Oct. 25, 1854.

The stomach, liver, and duodenum were presented. The duodenum was filled with gall-stones in such a way as to prevent the passage of food from the stomach and cause death by inanition. The specimen was taken from a man 54 years old.

Case 2. *Congenital Occlusion of the Duodenum.*

By Dr. Abraham Jacobi, Sept. 27, 1865.

A child, born at term, weighing 5½ lbs., lived four days. During its life it passed no water; some meconium was removed by the finger; and there was vomiting.

Autopsy.—The bladder was small. The ureters were pervious till within a short distance of the kidneys, where they were lost in the surrounding connective tissue. The kidneys were small and their secreting tissue undeveloped. The stomach and upper part of the duodenum were dilated. In the lower part of the duodenum the intestine was completely occluded.

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* See Volume I., pp. 245 to 249, and 265 to 269.

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1.—PERFORATIONS OF THE INTESTINES.

CASE 1. BY DR. W. H. DRAPER, Oct. 10, 1866.—A woman was attacked with typhoid fever, from which she convalesced after three weeks, and continued to improve until two weeks before her death, when there was a relapse. The relapse was mild and attended with a little diarrhœa. She was, however, suddenly seized with a chill, rapid pulse, and extreme prostration, without pain, vomiting, or tenderness of the abdomen.

Autopsy.—In the lower part of the *ileum*, eight inches from the colon, was a large, perforating ulcer. Many of Peyer's patches were enlarged and ulcerated, and there were several cicatrices of old ulcers.

CASE 2. *Tubercular Perforation of Intestines.*—BY DR. COLTON, July 24, 1850.—In a man who died suddenly, of whom no previous history was obtained. His lungs were found studded with tubercles, and there was a tubercular perforation of the ileum from which the contents of the intestine had escaped and caused peritonitis.

CASE 3. By DR. T. M. MARKOE, 1848.—There was tubercular ulceration of the ileum and cæcum; the large bowel was also covered with large, irregular, eroded ulcerations.

CASE 4. By DR. JOEL FOSTER, 1848.—There were two tuberculous ulcers, followed by effusion into the peritoneum.

CASE 5. By DR. CHAS. E. ISAACS, 1853.—There were many tubercular ulcerations, with eight perforations of the intestine as large as pigeon-shot. There was no peritonitis or extravasation of fæces, but great pain in the bowels. The mesenteric glands were enlarged and tuberculous. The lacteals were filled with tubercular matter, and there was advanced pulmonary phthisis.

CASE 6. By DR. T. C. FINNELL, 1857.—There was a perforation of the ileum about two feet from the cæcum, in a woman æt. 25, who

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supposed herself pregnant and took forcing medicines. The stomach and bowels were much congested.

Case 7. By Dr. L. Bauer, 1859.—There were two perforations of the ileum in a man who had been kicked by a woman. He seemed well for ten days, and then was suddenly taken down and died in two days. There was intense peritonitis, with profuse exudation of false membrane.

Case 8. By Dr. George Wilkes, 1850.—The perforation occurred without pain, in a girl, while sweeping. There was sudden prostration, followed by vomiting and death in twelve hours.

Case 9. By Dr. Dash, 1855.—The perforation occurred in a man æt. 60, who had been out of health since an attack of cholera in 1849. He had diarrhœa for ten days, then sudden pain in the abdomen, with rapid collapse and death. There was fæcal matter in the abdomen.

Cases 10 and 11. By Dr. Colton, 1850.—There was perforation of the intestines in two cases, both of whom were attacked soon after straining to pass water.

Case 12. By Dr. J. T. Metcalfe, 1853.—Perforation of the ileum in a man æt. 23, who had been ill for several weeks with diarrhœa, and much pain in the abdomen, also evinced from pressure on abdomen, when nearly comatose and moribund. The ulcerations commenced about six inches above the ileo-cæcal valve, and were transverse like those of dysentery. There was general peritonitis, and some fæces had escaped into abdomen.

Case 13. By Dr. Benjamin McCready, 1849.—The intestines were perforated by a musket-ball, which finally lodged in the right iliac fossa. The omentum had protruded and been returned. There was agglutination of the small bowels along the track of the ball, by copious exudation. The perforation was in the ileum and four other folds of intestines through and through. The ball was flattened and grooved as if it had hit upon a stone before entering the

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abdomen. It lay in a cul-de-sac behind bladder, and between it and the rectum.

Case 14. By Dr. T. M. Markoe, 1847.—There were ulcerations and thickening of the bowels, and numerous small ulcers penetrating through the mucous to the muscular coat. The follicles were greatly enlarged and filled with a gummy inspissation of natural fluid. The whole resembled dysenteric ulceration, but was decreed phthisical, although no tubercles were found in the patient.

Case 15. By Dr. Jackson Bolton, 1850.—Perforations of the intestines occurred in two cases of typhoid fever, without any pain at the time.

Case 16. By Dr. Henry G. Cox, 1851.—Perforation of the ileum, about one-half inch above caput coli, occurred on the twenty-first day of typhoid fever. There was peritonitis with stercoraceous vomiting, but pulse was generally eighty, and never rose above ninety.

Case 17. By Dr. J. W. S. Gouley, 1855.—Perforation of the ileum, from typhoid fever, occurred in a woman æt. 26.

Case 18. By Dr. Elisha Harris, 1857.—Perforation of the ileum occurred from ulceration of Peyer's plates in the fifth week of typhoid fever. There had been some hemorrhage previously from the bowels, but no diarrhœa.

Case 19. By Dr. Alonzo Clark, 1858.—The perforation happened in the third week of a case of typhoid fever. There was a sudden increase of fever, with pain in the right iliac region, rapidly spreading over the abdomen, and well-marked tympanitis. It recovered under opium treatment. This was undoubtedly a case of peritonitis from perforation, as the pain commenced at a point where perforation is apt to occur, and continued for an hour in that one spot. Peritonitis in the course of typhoid fever, without perforation, is very rare; has seen only one fatal case without perforation in a vast number of cases of that disease.

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CASE 20. *Perforation of Ileum—Strangulated Hernia.*

BY DR. ERKSINE MASON, Oct. 26, 1870.

Dr. Mason presented a perforated portion of the ileum of a woman fifty years of age. She had been seized with the symptoms of strangulated hernia, and after considerable effort succeeded, as she thought, in reducing the gut. There was no great pain complained of, but, suffering from soreness of the abdomen, she took in the course of the next twenty-four hours a large enema. A few hours after she sank and died of exhaustion.

Autopsy.—On opening the abdominal cavity the peritoneum was found to contain the contents of the intestine. The perforation through which they issued was caused by the separation in the strangulated portion of a small slough, at the juncture of the mesentery. The accident was the result of the injection.

CASE 21. *Stab-Wound of Ileum—Peritonitis from a Suture in the Intestine.*

BY DR. T. C. FINNELL, Sept. 22, 1869.

Dr. Finnell exhibited a portion of the ileum that had been the seat of a stab-wound. It was removed from the body of a man aged thirty. The injury had been inflicted with a butcher-knife, the blade of which entered the abdomen a little below and to the right of the umbilicus. After wounding the portion of intestine referred to, the weapon must have been turned flatwise, as it afterwards passed upward between the abdominal muscles a distance of seven inches. The patient had been seen by a medical man very soon after the fracas; the intestine was brought together with sutures, and the protruding portion was carefully returned. Death took place, however, soon after, as the result of peritonitis.

At the autopsy, which was made at the instance of the coroner, the inflammation was found to have extended from the vicinity of the wound as a focus. No abscesses were discovered in the vicinity, neither was any hemorrhage noticed in the peritoneal cavity.

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The wound of the gut had to all intents and purposes completely closed.

Dr. Sayre thought that the inflammation might have been excited by a portion of the suture, nearly three inches in length, which, instead of being cut off close, had been left to dangle in the peritoneal cavity.

NOTE.—Perforations of the ileum generally arise from tuberculous or typhoid ulcerations. They are too well known to require comment.

Report on Peritonitis from Perforation of the Intestines.

BY DR. HUGH WALSH, 1848.

It is an opinion generally adopted in pathology, that a peritonitis coming on in the course of a typhoid fever is the index of an intestinal perforation; and, in fact, autopsies have in the great majority of cases revealed the existence of this lesion. There are, however, exceptional cases. In the first place are two facts which have recently been observed in the service of M. Rayer; but these are not solitary. M. Rayer himself met with a case of this sort some years since. We find two similar cases reported in the work of Petit & Serres. These exceptional facts had been anticipated by Doctor Cazeneuve, in a memoir published in the *Medical Gazette*, in January, 1838, and of which we here give an analysis. The author remarks in the third of his conclusions: "The symptoms of this accident (intestinal perforation) are those of acute peritonitis of different degrees of intensity. We may *almost* affirm the existence of a perforation, when a peritonitis supervenes in the course of a typhoid fever." The "*almost*," if the two facts published by Petit & Serres were unknown to the author, was a prudent reserve, as is shown by the two cases we are about to detail.

In the *first case*, on opening the abdominal cavity, the signs of a general peritonitis were observed. There was sero-purulent liquid between the folds of the intestines; a collection of pus between the liver and the arch of the colon, and the pelvis contained a large quantity. There were false membranes at different points of the

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abdominal cavity, and also in the pericardium. To ascertain the existence of an intestinal perforation, the intestine was filled with water from the duodenum to the rectum; *there was not the slightest escape of liquid*, though the intestine was thinned at various points.

In *the second case* nearly the same signs of peritonitis existed; the same process was adopted to ascertain the existence of a perforation, and the result was the same.

It is well known that in cases where there have existed strong reasons for suspecting the existence of a perforation of the intestine, opium has been administered in large doses. This method seems to have been first recommended and employed by Doctors Graves and Stokes, of Dublin. Louis and Chomel believe that they have each saved a patient by this means. But the facts which we have just reported, and those which we have cited, are such as to incite a suspicion whether or not the patients whose cases terminated favorably under the use of opium were really suffering from an intestinal perforation. Still it would be no less desirable to have recourse to this mode of treatment, even in a case *suspected* of perforation.

In regard to the case which Chomel is said to have saved by the opium treatment, I may add that he expresses himself with great diffidence. He says, "I have many times made use of this treatment in cases of intestinal perforation coming on in the course of a typhoid fever; in one instance the symptoms subsided—but I have been constrained to retain some doubt as to the *fact* of the perforation in this case."

But since patients may have during their convalescence from typhoid fever a peritonitis without perforation, we would inquire of those pathologists who do not admit a spontaneous peritonitis, to what cause they would attribute that which has terminated, in a manner so rapid and so unexpected, the two cases of typhoid fever which we have just detailed. It will perhaps be objected that the perforation was not sought for with sufficient care. But the minuteness with which important autopsies are made in the service of M. Rayer, ought, it seems to us, to give a great authenticity to the results obtained.*

* *Journal de Connaissances*, June, 1846.

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The modern, and it may now be called the universally received doctrine in regard to the origin of peritonitis, has undoubtedly been carried to an extreme by some of its advocates. The fact that we rarely open the thoracic cavity in an individual at all advanced in years, without finding some evidence of former pleuritic inflammation; coupled with the fact in the great majority of cases we find no such evidence of inflammatory action having at any time existed in the peritoneum, establishes at once the idea of a striking difference in the susceptibility of these serous membranes to the ordinary causes of inflammation, such as atmospheric changes, etc. If we proceed a step farther, and seek for the exiting cause of the inflammation in the cases of effusion of lymph, adhesion, etc., which we actually do find in the abdominal cavity, the number is so exceedingly small in which the inflammation has not been directly and manifestly caused by some pre-existing morbid condition, local or general, that our conviction of this difference of susceptibility must become exceedingly strong. "A spontaneous and primitive peritonitis, says Chomel, is a rare disease; this opinion, which we put forward at the time of the first publication of the Dictionary of Medicine (1826), has become since then a profound conviction. In the space of fifteen years we cannot recall a single case of peritonitis terminating fatally, and in which the autopsy was properly made, which was contrary to this general observation. In this respect the peritoneum is an exception to the other membranes, which are all often the seat of primary inflammations." Whenever the physician has satisfied himself that he has to do with a case of peritonitis, he ought, before attempting anything in the way of treatment, to ask himself whether the case be one of simple peritonitis, to be attacked by antiphlogistic measures; or if the inflammation be not the consequence of some other lesion, such as a perforation, or intestinal occlusion, which would furnish the first and most important indications of the treatment to be pursued. Now, in the greatest majority of cases—we cannot too often repeat it, because the proposition is opposed to the ideas and the practice of a large number of physicians—peritonitis is a secondary affection; the diagnosis is incomplete, and the treatment cannot be properly conducted till the primitive lesion is recognized." We apprehend that the stress which has been laid by Chomel and others on the local causes of peritonitis, inconsistent

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as it is with the fact that such local causes cannot always be discovered, has been the means of attaching some uncertainty to the general proposition that peritonitis is very rarely a primitive disease. We know that it is not unfrequently the cause of death in granular disease of the kidney; it is also a frequent and fatal complication of erysipelas in young children; and Andral, in the *Clinique Médicale*, reports a case in which a violent and fatal peritonitis followed immediately on the sudden subsidence of rheumatism in the shoulder and elbow-joints. In these cases no local lesion could be discovered to account for the peritonitis. Still the disease was not primary; it did not arise in a state of health and under the ordinary exciting causes of inflammation; and though we are unable to say why the peritoneum any more than the pericardium should become inflamed in the course of Bright's disease, the existence of the connection cannot be doubted; and therefore such cases form no exception to the general rule that peritonitis is rarely a primitive disease. The same may be said of the two cases of peritonitis following typhoid fever; the disease was a secondary one, though the connection between the fever and the inflammation we are unable to state, as there was no perforation. But extreme thinning the bowels is sometimes followed by peritonitis.

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2.—RUPTURES OF THE ILEUM.

CASE 1. By DR. FINNELL, March 26, 1856.—A boy æt. 7 fell from a building a distance of ten feet, bringing with him a large stone, which fell on his abdomen. He died on the third day with symptoms of peritonitis, but there was no pain or other symptom until the day after the injury.

The autopsy showed no external marks of violence. There was a rupture of the ileum, and evidences of acute peritonitis.

CASE 2. By DR. FINNELL, June 11, 1856.—A man æt. 30 was violently beaten and kicked. He instantly complained of severe pain in the bowels, nausea, and prostration. In a few minutes, however, he recovered sufficiently to walk a short distance home. The pain continued, and he died fifteen hours after the injury.

Autopsy.—There was a circular perforation of the ileum about three feet from the colon, with the usual lesions of acute peritonitis.

CASE 3. By DR. WM. H. VAN BUREN, 1849.—There was a rupture and laceration of the ileum, from jamming between two railway cars.

CASE 4. By DR. JAMES R. WOOD, 1849.—This case was caused by violence. Has only seen one other case. It occurred in a man æt. 50, some of whose friends fell upon him while wrestling, followed by immediate and great pain. Tympanitis and vomiting set in soon after, and he died in four hours, as if from strangulation of the bowel. He had an old reducible scrotal hernia, which was in place; but a tumor of the size of a thumb was found in the groin, on the outside of the external ring. It was incompressible and tender, and consisted of the old sac greatly distended. There was no strangulation, but a rupture in the small intestine one inch long, near the external ring, which was irregular and ecchymosed. There was intense peritonitis, and fæces had been effused into the abdomen.

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CASE 5. By DR. T. C. FINNELL, 1853.—A young man, while wrestling, fell with his opponent upon him. At first he was only uneasy, but soon felt weak and vomited. An inguinal hernia was discovered and reduced; but the vomiting returned, and death ensued in twenty-eight hours. There was peritonitis from a rupture of the ileum about three feet from cæcum. Has seen two other cases.

CASE 6. By T. C. FINNELL, 1854.—A man was knocked down by a cart, without being run over. He walked home, but was soon attacked with pain in the right side and vomiting, which persisted until his death thirty hours afterwards. The peritoneum was highly injected, of a scarlet color, without serous effusion. The rupture of the ileum was about six inches above the caput coli.

CASE 7. By DR. T. C. FINNELL, June 8, 1859.—A man received a kick in the abdomen, and died on the second day after.

Autopsy.—There was a rupture of the ileum, two feet above the cæcum, large enough to admit the little finger. There were evidences of peritonitis in the neighborhood of the rupture. *There were no external marks of injury on the abdominal wall.*

CASE 8. By DR. T. C. FINNELL, 1859.—In a man who had been beaten and punched in the abdomen. There was a quart of serum in the abdomen. The intestines were adherent throughout. The rupture was midway between small bowels and caput coli. There was no inflammation of the edges of the laceration.

CASE 9. By DR. T. C. FINNELL, July 22, 1869.—A man æt. 28 was kicked in the abdomen by a horse. The injury was followed by pain, tympanitis, general collapse, and death within five hours.

Autopsy.—There was a rupture of the ileum twelve inches above the ileo-cæcal valve. Through this opening the contents of the intestine had escaped into the abdominal cavity and excited peritonitis.

CASE 10. DR. JOHN P. GARRISH, 1849.—In a child æt. six months, from injury after being thrown on the front of a wagon.

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There was a discharge of one-half drachm of blood from the bowels; great pain and tenderness of the abdomen, tympanitis, and death on the seventh day.

Autopsy.— ℥ ss. of bloody serum in abdomen. There was an invagination just where the duodenum passes under the transverse arch of the colon, and one-half inch below this there was a rupture in the jejunum. The rupture occurred first; the mucous membrane of the duodenum filled up the rupture, and then invagination took place.

NOTE.—Ruptures or lacerations of the bowels may take place from blows, falls, or other injuries, without any laceration of the walls of the body. The intestine may be ruptured, or even completely torn across, and the sudden escape of the contents of the intestines generally produces acute and violent peritonitis.

It is very important to remember that sudden fatal injury may occur without any external bruise. In ruptures from the wheels of vehicles passing over the abdomen, the duodenum and jejunum are more apt to be involved than the ileum, for this is protected in the lower part of the abdomen by the pelvic bones.

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3.—PERFORATIONS OF THE CAPUT COLI.

CASE 1. By DR. ALONZO CLARK, March 10, 1858.—A woman, habitually constipated and addicted to purgative medicine, was attacked with sudden pain in the right iliac region, and died in a week.

Autopsy.—The peritoneal cavity contained gas. There was a small perforation in the caput coli, near the ileo-cæcal valve; near this was another small ulcer only involving the mucous membrane; both were probably caused by hardened fæces.

CASE 2. By DR. JARED LINSLY, 1855.—There was general peritonitis from obstruction and perforation of the cæcum, which was ulcerated and perforated. There were also five or six openings in the ascending colon, with fæces protruding through them like beads.

CASE 3. By DR. T. C. FINNELL, 1855.—There was a perforation of the colon near the cæcum, following topical dysentery. Fæces had passed into the peritoneal cavity.

CASE 4. By DR. JOHN G. SEWALL, 1857.—Perforation of the cæcum in a woman æt 41. She had ordinary colic pains, increasing in severity, with nausea and partial collapse. A firm tumor of the size of an infant's head was found in the *left* umbilical region. No improvement ensued, but tympanitis, tenderness, pain, and intense suffering were followed by death in fourteen hours.

Autopsy.—Fetid gas in abdomen; colon so enormously distended as to resemble a stomach, and so transposed that the cæcum was found in the *left* hypogastric region. There was a rounded opening, one-third of an inch in diameter, opposite the caput coli, giving exit to black grumous fluid, two quarts of which was found in the peritoneal cavity, consisting of altered fluid and other feculent matter. There was congestion of the intestines; blackness of the colon and lower two feet of the small bowels. The calibre of the small intestines so contracted that the little finger could scarce be forced into them. The colon was lined with dark, clotted blood. The mucous membrane in and about cæcum was softened and abraded,

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especially for a space of two inches around the rupture. The muscular coat was laid bare.

Case 5. By Dr. John T. Metcalfe, 1857.—Pseudo-perforation of the cæcum. In a precisely similar case to the above, and which terminated fatally, there was not the slightest perforation of the bowel. This was ascertained by filling it with water; there was merely an abscess in the iliac fossa. The diagnosis between the two is extremely difficult.

Case 6. By Dr. Willard Parker, 1851.—A pericæcal abscess was opened, and discharged freely, followed by recovery.

Case 7. By Dr. John H. Griscom, 1855.—There was pain in the epigastrium and vomiting for eighteen months, in a woman æt. 28; diagnosed as ulcer of the stomach. But a tumor was discovered in the right iliac region, followed by discharge of large masses of fæces, disappearance of the tumor, and recovery from the supposed ulcer.

Case 8. By Dr. Edward Frankel, Oct. 14, 1868.

The patient, 40 years of age, in an advanced stage of phthisis, came under the care of his last medical attendant nine weeks ago. Two and one-half years ago, being in an incipient stage of consumption, he applied to a female quack, who gave him a very drastic cathartic to act as a derivative from the lungs. After taking it he was suddenly seized with severe abdominal pain to the right of and below the umbilicus, without any other symptoms; the pain, however, being severe enough to confine him to bed. He sent for a physician, who treated him for inflammation of the bowels. The pain soon subsided, except at a spot in the right inguinal region. This continued, without giving rise to any great inconvenience, until shortly after he noticed a small swelling, in the situation of the pain, which was very tender and immovable. His physician desired him to wear a truss, which he could not do on account of the great tenderness, which gradually increased, being at last so severe as to render him unable to work. Several physicians afterwards attended him, without affording him any relief. His last one, upon examining the part, found a swelling situated above Poupart's liga-

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ment, in the course of the inguinal canal, measuring about two and one-half inches in length and one inch in width, immovable, and resonant on percussion. With the object of affording him some relief, a graduated compress was applied, but did not fulfill its object, and instead of it, the part was kept cool with water-dressing. About six weeks ago, being confined to his bed by his pulmonary disease, he noticed a slight redness in the situation of the swelling, which gradually extended itself until it covered a surface about three inches in diameter. A process of ulceration was gradually established, and in about three weeks the integument gave way. A small quantity of serous fluid of a purplish color, with some fæcal matter and gas, were discharged. From this time until his death, which occurred from pulmonary complaint three weeks since, a considerable quantity of fæces passed through this opening; a natural evacuation per rectum, however, occurred perhaps every second day. The discharges from the fistula were entirely fæcal.

The external opening was situated about midway between the ant. spin. proc. of the ileum and the symph. pubis, above Poupart's lig., in about the situation of the internal abd. ring. This opening led into a pouch about the size of a hen's egg, situated between the tendon of the external oblique muscle and the integument, and extended backward one and one-half inches, being in communication with the cæcum by means of two small openings, with smooth, rounded edges. The cæcum was firmly attached to the abdominal muscles by adhesions, and is funnel-shaped towards the point at which the perforation has occurred. The vermiform appendix was also firmly bound down by adhesions, being twisted so as to lie across the anterior part of the cæcum. The ascending colon was of a purplish color for about six inches above the point of adhesion, and was also attached to the abominal walls by a few slight adhesions. A small portion of the ileum was adherent to the left of the cæcum, at its junction with the abdominal walls, by a narrow band about one-half inch in length. All the other portions of the intestines were free.

The fact of the swelling and succeeding ulceration occurring in the situation of the inguinal canal gave rise to the supposition of a strangulated hernia. The circumstance, however, that at the time at which the patient was treated for inflammation of the bowels, he neither had constipation, vomiting, nor any other symp-

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tom of strangulation; as also the consideration of the time which elapsed from the first appearance of the swelling until the perforation occurred, were opposed to such a view.

The unnecessary administration of the drastic cathartic two and one-half years ago probably gave rise to an inflammation of the ascending colon and cæcum, resulting in ulceration. The ulceration spreading towards the peritoneal investment of the gut caused local peritonitis, by which the anterior wall of the cæcum was firmly bound down to the parietal peritoneum in the region of the internal inguinal ring; so that, after its ulceration had perforated the gut, the contents of the bowels were barred from entering the peritoneal cavity; but set up ulterior ulceration of the abdominal walls by which even these were perforated, and a cloaca formed between the muscles and the skin. The latter finally gave way by gradual thinning. The intestinal fistula was congested.

NOTE.—Perforation of the cæcum seems much more rare than that of the vermiform appendix. But *typhlitis stercoralis* is not uncommon from the accumulation of indigestible and fæcal matters in the cæcum; arising from atony of the muscular fibres, caused by sedentary habits and constipation; or proceeding from catarrhal and rheumatic inflammation followed by debility of the contractile fibres. Removal of the accumulated fæces and prevention of their renewed occurrence generally suffice to effect a cure. If not, ulcerative destruction of the mucous membrane, and phlegmonous suppuration of the muscular coat may result, followed by rapid perforation, especially of the posterior surface of the cæcum; succeeded by ichorous destruction of the cellular tissue of the iliac and lumbar regions, and the formation of an abscess.

Sometimes inflammation attacks the lax cellular tissue which lies between the cæcum and iliac fossa, followed by suppuration, and is then called perityphlitis. In most instances this arises from preceding irritation of the bowels; but a calculus descending along the right ureter has given rise to it. The purulent matter may burrow up as high as the kidney, and as low down as the cul-de-sac between the rectum and bladder. It often opens into the cæcum, and also externally.

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4.—PERFORATIONS OF THE VERMIFORM APPENDIX.

Case 1. By Dr. Chas. K. Briddon, Dec. 12, 1876.

Dr. Briddon presented a specimen of perforation of the appendix vermiformis, with the following history: I saw the gentleman from whom this specimen was obtained, in consultation with Dr. Theophilus Steele, of this city; he was of Southern birth, well proportioned, and in the prime of manhood. Two years ago he had an attack of what his medical attendants called inflammation of the bowels, and the trouble on that occasion was principally upon the right side, probably in the appendix.

His present illness began on Sunday morning, Dec. the 3d. At about 4 A.M. he was awakened by severe abdominal pain diffused all over that part, but most severe around the umbilicus; it was constant, but aggravated at frequent intervals by paroxysms of increased severity; the parts were also tender upon pressure. He had had no evacuation from the bowels; had only vomited once or twice; his tongue was moist and only moderately coated; his pulse was only slightly accelerated, and his temperature normal.

I saw him next day. His decubitus was dorsal, with thighs slightly flexed, his pulse was a little over a hundred, temperature 100°, expression anxious; his abdomen was distended, tympanitic, and everywhere exquisitely tender, but most so in the right inguinal region. The last-mentioned part was thoroughly examined; it was as resonant as the neighboring regions, and no tumor of any kind could be discovered by such manipulations as the patient would tolerate. He had no swelling at any of the usual sites for hernial protrusions, and the question arose whether the symptoms were occasioned by intestinal obstruction, due to bands resulting from his previous attack of inflammation; or to extravasation through a perforation of the appendix vermiformis. A due consideration of all the facts led me to the opinion that extravasation, and not obstruction, was the principal factor. The most prominent feature was the evidence of acute diffuse peritonitis, and its sudden invasion—in fact, I think the symptoms of obstruction were wanting, for vomiting had only occurred once or twice, and did not recur after the first day. The treatment adopted was, the

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hypodermic use of morphia in sufficient quantity to control pain; local depletion by the application of a dozen leeches over the right iliac fossa; and the assiduous use of hot fomentations. The faithful use of these means availed nothing; the patient rapidly sank into a condition of collapse, and died at 7 P.M. on the 5th—sixty-three hours from the invasion of the disease.

Autopsy.—Made sixteen hours after death. Rigor mortis was well marked; the abdomen was distended and tympanitic; no tumor could be detected in the iliac region. On making a section of the abdominal walls a large escape of gas, having a strong feculent odor, occurred; and this was followed by a considerable quantity of fluid, stained and mixed with fæces. The omentum was adherent to the intestines, which were largely inflated; but the large intestine was more distended than the small. The convolutions of the lower portion of the ileum were matted together and to the neighborhood of the cæcum, by recent lymph. On stripping some of this deposit from the ileum, ten or twelve inches from its termination, an irregular spot presented itself that was a dark slate color, and looked as if it were in a condition of sphacelus. A subsequent careful examination of this part showed the opposed mucous surface intact.

On removing the cæcum, a perforation was found in its appendix, about two inches and a half from its junction with the gut. The perforation was circular, about a third of an inch in diameter, and exposed to view a foreign body, which I have left *in situ*. It will be seen that it is impacted near the extremity of the appendix, that it is circular or ovoid in form, and from examination of its exposed surface, and the percussion note elicited by tapping it with the back of a knife, I am led to regard it as a plum-stone.

Remarks.—This is the second specimen that I have presented within a year, of the parts involved in fatal perforation of the appendix cæci. The first occurred in the practice of Dr. Hadden, of this city, and had many features in common with the present. In both there was large abdominal effusion, with general diffuse peritonitis, and rapid collapse. In neither were the conservative processes that eventuate in abscess and possible recovery successful; and I think that such an event will always be determined by the empty or full state of the intestine at the moment that perforation occurs. If the escape of fæces be exceedingly small, nature may wall it in by abscess; if, on the contrary, it be large, fatal diffuse

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peritonitis must be inevitable. Certainly, in both of these cases the resources of nature were inadequate; the products of inflammation were broadcast; not concentrated in the immediate neighborhood of the lesion. There was not even the semblance of incipient abscess.

CASE 2. *Peritonitis of Left Side from Perforation of Appendix Vermiformis.*

BY DR. ALFRED L. LOOMIS, June 11, 1873.

Dr. Loomis, in presenting a specimen, remarked: On the twenty-seventh of last month I saw, for the first time, a gentleman from whom this specimen was obtained. He was of temperate habits, twenty-four years of age, of fine physique, and had always been a very active man in business. The evening before I saw him, after a pretty hard day's work, and coming home fatigued, he ate freely of lobster salad and went to bed soon after. During the night he was seized with pain in the abdomen, accompanied with diarrhœa. These symptoms kept him awake throughout the night, and in the morning he sent for me.

He stated that he had two severe attacks of illness, one twelve years prior to the present one, and another seven years before. The first attack occurred in Naples, and was pronounced by the physicians there to be some affection of the bowels, the nature of which the patient did not understand. *The symptoms were similar to the present attack.* He was confined to his bed six weeks, and it was nearly three months before he could resume his occupation. Seven years ago, while in Paris, he had an attack of what was termed typhoid fever, and was ill for two months.

For a month previous to his last illness he had not been as well as usual. He had diarrhœa alternating with constipation, but as he was not inconvenienced thereby, he did not regard it as serious. Four days previous to his last illness, being an officer of the Seventh Regiment, N. Y., he drilled his men four hours without fatigue.

I found him with a pulse of 80, full and soft, with normal temperature, and a slightly flushed face. His abdomen was soft, but

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not tympanitic, and there was one point of tenderness, on firm pressure of the abdomen, midway between the umbilicus and crest of the ileum on the *left* side. When pressing firmly over this point, the pain occasioned was not severe, but was sufficient to make him ask me to stop. He had been walking about the room at the time, and I was inclined to look upon it as a simple case of indigestion, and accordingly advised him to take some castor-oil and laudanum, and if not better in the morning to send for me.

The next morning, the diarrhœa and pain continuing, I was requested to see him again. I found him dressed and lying on the lounge. His general condition had changed very little since my previous visit; his pulse was still below 80, but it had a firmness which I had not noticed at the previous visit. His abdomen was still soft, and the pain was the same as at my previous visit. He had no nausea, but said that he had a constant desire to go to stool, and that he had noticed a streak of blood in his passages. His temperature was normal and his skin was moist. His tongue, however, was heavily coated—more heavily than I had noticed for a good while. I suspected peritonitis, but threw out the possibility of its existence on account of the localized pain on the *left* side as its starting-point. If it had been on the right side, I should have thought of perforation of the appendix vermiformis as the cause. Again, I could hardly conceive of peritonitis developing without more constitutional disturbance and without more disturbance before the commencement of the illness. There was no place where I could detect dulness over the abdomen, and the seat of pain was examined with special reference to this point. I thought it better to be on the safe side, however, and ordered him to bed, a poultice to be placed over the abdomen, and full doses of opium to be repeated as often as necessary to keep him free from pain. I saw him in the evening. The pain was relieved, and he allowed firm pressure over the abdomen. There was then no tympanitis. He felt so well that he asked me what I would allow him to eat. The thirst of the morning had disappeared, and he proposed the next day to go down to his business. I ordered him to keep quiet, but not to take the opiate unless he had pain. He slept all night without taking opium.

The following morning, when I visited him, he seemed a little more restless than the night before. His pulse was 90, and firmer in character; the tenderness was greater and more diffuse. His skin

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was a little dry; he complained of thirst, and there was a slight tympanitis at the lower portion of the bowels. I was pretty well satisfied from the character of the pulse, it being of that peculiar firm character of peritoneal inflammation, and the fact that abdominal respiration was altogether suspended, that he had localized peritonitis, and I immediately commenced the opium plan of treatment, ordering enough opium to keep the respiration at eighteen and insure freedom from pain; and from that time until his death he had no suffering. At no time did he have vomiting, neither did he assume the position of peritoneal patients, being able to turn from side to side with ease. He complained once or twice of difficulty in passing water, but the catheter was not used at any time. On the third day the abdomen became very tympanitic; the pulse rapid, small, and thready; his respiration quick and thoracic; and he died June 1st, after four days' illness.

Autopsy.—A post-mortem examination was granted to enable me to ascertain the cause of the peritonitis, and was made by Dr. Drake, thirty-six hours after death, the body having been kept on ice. The abdomen alone was examined. It was not as tympanitic as at the time of death, as the undertaker had resorted to pressure to reduce the circumference of the body. On laying open the abdominal cavity the visceral portion of the peritoneum was found injected and roughened by fibrinous deposits over its whole surface. The omentum was very large, and adherent to the left iliac fossa. It was found that the edge of the omentum on the *left* side formed a portion of the wall of an abscess, and that the *cæcum and portion of the ileum were carried across the abdomen to the left side, and were bound down on the iliac fossa.* In the fossa was an abscess containing about eight ounces of somewhat offensive and dark-colored pus. The walls of the abscess were formed by the omentum, cæcum, bladder, rectum, and abdominal wall. In the abscess was the vermiform appendix, which was elongated, distended, and perforated. The walls of this abscess were thick and pigmented, and the edges of the opening in the appendix were gangrenous.

In conclusion, Dr. L. referred to the interesting point in the diagnosis in the case.

Dr. Richard J. O'Sullivan referred to a case of supposed perforation of the appendix, terminating in fatal peritonitis. It was to be regretted that no autopsy was allowed to verify the diagnosis.

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CASE 3. *Numerous Perforations of the Appendix Vermiformis. Unusual Seat of Abscess.*

BY DR. ABRAHAM JACOBI, Oct. 13, 1869.

Dr. Jacobi exhibited the vermiform process and annexa removed from the body of a man aged about 50 years, who had always enjoyed good health, and never complained of anything until about ten days before his death. At that time he had a pain in the right side of his abdominal cavity, attended with a good deal of fever and some slight swelling. It was thought to be typhlitis from stercoraceous matter. The day before the pain and fever showed themselves he had taken an aperient, which caused four or five loose passages, mixed with which was a certain amount of dry fæces. It was supposed that there were more hardened fæces of which the typhlitis was the result, and he was treated accordingly. Another aperient was administered, without bringing much away. The further treatment consisted in narcotics, and the gentleman got better. For about six days he felt entirely well, and had a few passages. At the end of this time he arose one morning about four o'clock and took a drink of cold water, immediately after which he was seized with a severe pain and became faint. His physician was sent for, and when he arrived he found him suffering from the usual symptoms of perforation of the gut. Death took place twenty-two hours after.

Autopsy.—A large abscess was found to the right behind the ascending colon, near the origin of the vermiform process and above it. A considerable amount of pus was found free in the abdominal cavity, in which floated a few scybala. There was adhesion of the intestines in the neighborhood forming the walls of an abscess, which had given way at several places at one and the same time. The vermiform process was attached to the posterior side of the ascending colon, and was perforated in several places. Between these perforations, and also corresponding to them, were small masses of fæces. Adhesion had also taken place between the walls of the vermiform process, at its entrance into the colon.

The points of interest in the specimen consisted in the number of simultaneous perforations in the appendix and in the unusual

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position of the abscess, which, instead of being in the iliac fossa, was higher up and more posteriorly. This was occasioned by the appendix being drawn up and attached in the manner already described. This condition of things masked the signs of the presence of an abscess by percussion.

The proximate cause of death was the increased peristaltic action of the intestines, caused by the cold water which the patient had drunk.

CASE 4. *Inflammation of Appendix Vermiformis—Rupture caused by Over-exertion.*

BY DR. WM. B. EAGER, January, 1870.

Dr. Eager exhibited an appendix vermiformis with perforation, removed from a single gentleman, thirty years of age, a native of Massachusetts, and a merchant of this city. At the second battle of Bull Run, in 1862, while serving as an officer in the army, he received three flesh wounds in different parts of his body, besides being struck with a flattened spent ball in the right iliac region. This latter occasioned him at the time more pain and inconvenience than all the rest, although at the point of injury nothing more than a slight scratch was discoverable. His neighboring clothing was, however, torn, showing that the missile must have come with considerable force. So much was he disabled by the latter bruise that he could not get himself from the field, and, after remaining there for the better part of two days, was duly exchanged.

He shortly after regained his usual health, and enjoyed it until the fifth of last December. He went to church twice on that day, ate a hearty dinner, and spent the evening with some bachelor friend, returning home about half-past ten. About two o'clock he awoke with intense pain in the bowels. His fellow-boarders plied him with the usual domestic remedies, but with little benefit. Towards daylight he vomited once. This was the only time during the whole sickness that this symptom showed itself.

The patient, residing in the same house with Dr. Burke, was

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seen by that gentleman, who prescribed for him various remedies, among which were leeches. These latter the patient was not at first inclined to have applied, until the urgency of his symptoms in the evening compelled the doctor to insist upon it. When Dr. Burke first saw the patient the pulse was 104, and there was intense pain at a point on the abdomen two inches in diameter, just above Poupart's ligament. Following the leeches hot fomentations were used, with a grain of opium every two hours.

Dr. Eager saw the patient about noon on Tuesday. The pulse was then 108; there was intense thirst, the skin was moist, and there was no tympanitis; neither was there any tenderness until the spot previously indicated was reached, when pressure gave rise to exquisite pain. No position gave him any ease. The quantity of opium was increased, and oiled silk was added to the fomentations. In the evening he seemed a good deal relieved from pain, although his pulse remained considerably above 100. His respiration had decreased from 36 in the morning to 24. He slept, perhaps, half the night.

On Wednesday morning, about eleven o'clock, his pulse was 96, and respiration 15, in which condition he continued until nine in the evening, his mind remaining perfectly clear, there being no evidences of peritonitis, and the point of tenderness not being as sensitive as before. At this time, without having previously had any trouble with his water, he was seized with a desire to urinate, and for that purpose arose and made several unsuccessful attempts to relieve himself. At eleven o'clock Dr. Burke catheterized him, and drew off eight ounces of dark colored urine. At three o'clock the following day the patient was rather suddenly seized with tenderness and intense pain over two-thirds of the abdomen. Dr. Eager was immediately sent for, and arrived at four, and Dr. Parker was called in consultation at five. There was no tympanitis at this time, neither was there any throughout the whole progress of the case. The patient was examined carefully, with a view of ascertaining if there was an abscess forming. No evidence of such a condition could be found, and it was rather a question whether or no the appendix was involved in the peritonitis, which, by the way, was then very evident.

He grew rapidly worse, and finally died on Saturday morning at five o'clock.

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Autopsy, made thirty hours after death, by Dr. Mason. On opening the abdominal cavity there were evidences of intense peritonitis; everywhere the peritoneum was intensely injected, and the intestines were firmly and extensively glued together by adhesions. Large patches of lymph were seen in many places, and some of these equalled in thickness the breadth of the little finger. The parts were carefully raised, and the appendix was easily discovered attached to the abdominal walls of the right iliac fossa; and to avoid tearing it, Dr. Mason dissected the peritoneum covering the parietes sufficiently to enable him, after tying the appendix, to remove the whole specimen uninjured. The process was an unusually long one, and about its middle there was an enlargement twice the diameter of the organ at any other point; and just above this bulging portion, and near the gut, was the point of perforation. From the distention six small bodies were removed resembling in shape and appearance ordinary mouse-dung.

In conclusion, Dr. Eager remarked that this perforation, in all probability, did not occur until the patient left his bed and exerted himself to pass his water. If that were true, a practical lesson could be drawn, never to allow the least exertion on the part of a patient while suffering from inflammation of that particular organ.

Case 5. *Inflammation of the Appendix without Perforation.*

By Dr. Austin Flint, January, 1870.

Dr. Flint commended the suggestion of Dr. Eager to the consideration of the members. He believed he had seen a case of inflammation of the appendix that had not been attended with perforation, and thought that similar ones were not very infrequent. "The late Dr. Jackson, of Boston, has described an affection obscure to him, as he said, which had all the symptoms of inflammation of the appendix, characterized by localized peritonitis and pain. I know it is customary to attribute the local disease to any little matter that may be found in the appendix, but it seems to me often without much ground."

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THE FATAL ATTACK OF PERFORATION OF THE APPENDIX GENERALLY PRECEDED BY PREVIOUS INFLAMMATION.

Dr. Jacobi was of the opinion, from what he had seen, that most, if not all of cases of inflammation of the appendix, when first discovered, were not of recent origin, but that one or more seizures antedated the fatal attack. These previous attacks were liable, by adhesions and the like, to distend the process, and render the escape into its cavity of irritating substances possible. If this were not the case, perforation would of necessity be exceedingly common.

Dr. Thompson referred to a case in point that followed an attack of pelvic cellulitis five years before.

Dr. Eager remarked that he had been called to see a case, on the previous Monday, of a gentleman who had all the symptoms of localized inflammation in the right iliac region, and which to his mind were clearly those of perityphlitis. He had also met with two others similar to those referred to by Dr. Flint, one recovering after five, and the other after seven weeks' confinement.

Dr. John C. Peters recollected the case of a lad fifteen or sixteen years of age, who had had repeated attacks of inflammation of the appendix, in the last of which rupture occurred as the result of getting out of bed.

CASE 6. *Ulceration and Perforation of the Vermiform Appendix, from Hardened Fæces.*

BY DR. BENJAMIN MCCREADY, June 11, 1856.

On Wednesday, June 4th, he was called to visit a slight, somewhat delicate boy, though habitually enjoying good health. Two days previous, immediately after dinner, he had eaten a large piece of cocoanut, and had suffered from colicky pains in the bowels. He had vomited slightly, and a dose of castor-oil had been administered, which had acted freely. He was found with a cool skin and a tranquil expression of countenance, the tongue clean, and the pulse about 100 and without tension. The pain was aggravated

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at intervals, and was located in the epigastric and right hypochondriac regions. He complained of tenderness on pressure, but when it was made gradually he bore it well. A dose of calomel and Dover's powder was ordered, to be followed in the morning by a mixture of rhubarb and soda. The medicine operated freely, but without affording relief. Morphine in full doses was now prescribed, and the pain for a time was alleviated and the pulse reduced in frequency. But the pain soon returned and the pulse rose to 116. The abdomen was slightly swollen, and the tenderness, referred to the same region as before, was somewhat increased. He said that it hurt him to rise or turn in bed; this, however, was not constant, since on different occasions he turned and raised himself to a sitting posture, at my request, without complaint. The decubitus was natural, generally on the side; the legs were not drawn up; the countenance was natural and the skin soft. He was put on the use of calomel and opium, two grains of the former with half a grain of the latter, every three hours. The opium, as is frequently the case, somewhat diminished the secretion of urine, and also produced slight retention, the patient passing it but once in twenty-four hours.

On the morning of Sunday, June 8th, Dr. Gurdon Buck saw the child in consultation. The symptoms had not materially altered. The pulse ranged from 116 to 120, and was soft and of moderate fulness; the tongue clean; the skin, countenance and decubitus natural. As the bowels had not been moved for nearly three days, a large enema with a spoonful of castor-oil was ordered, and warm fomentations to the abdomen, which had previously been applied, were continued. At 1 P.M., his countenance was sunken and pulse very frequent and scarcely perceptible. The skin was bathed in perspiration and there was some coldness of the extremities. The pain was gone, and the little patient moved freely in all directions. Soon after the administration of the enema he had a large watery evacuation and passed urine freely, followed by vomiting of a quantity of dark green-looking fluid.

During the afternoon and evening the vomiting recurred several times, and acute pain in the abdomen was complained of. He became exceedingly restless, tossing about in bed; the extremities colder, the countenance more livid and sunken, and he finally expired at about three o'clock in the morning.

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Autopsy, fourteen hours after death.

The abdomen was filled with a considerable quantity of seropurulent fluid. The intestines were universally glued together by soft adhesions, which were readily broken up. In several places where two folds were adherent, there would be at the place of adhesion a dark brown circumscribed patch, with a well defined margin, resembling so closely the appearance of gangrene after strangulated hernia, as to be at first taken for gangrene by Dr. Buck. The intensity of the inflammation was evidently greatest about the hypogastric region, and, on raising the intestines from the pelvis, the effused fluid was found there of a dark color, having a brownish tinge, but without feculent odor. Amid the mass of large intestine which dipped down into the pelvis, the appendix vermiformis was found intensely inflamed, much enlarged, having a flattened appearance, and contained a concretion about the size of a swollen white bean. *No perforation was noticeable.* When laid open, the mucous membrane of the appendix was found intensely inflamed, the inflammation extending to the neighboring large intestine, the follicles of which were enlarged and prominent. The concretion consisted apparently of a small feculent mass, which had formed itself around two or three minute whitish bodies about the size of strawberry seeds. The appendix with the caput coli were removed, and on being macerated for an hour in water, *several minute ulcerations were evident*, one of which, about the size of a pin's head, had perforated its parietes.

Case 7. By Dr. Chas. Young, February 12, 1868.—Maggie O'Neill, aged 17, single, came under my care February 8, 1868.

She had always been healthy up to this illness. Her habits had been good. She had been employed as clerk in a bakery; had been somewhat exposed to changes of temperature from sleeping in a damp, cold room. She had menstruated regularly since she was fifteen. On Tuesday night, February 4th, while sleeping, she had been seized with a pain in her abdomen so severe as to awaken her. She could assign no cause for the pain, nor locate the place of its commencement. Her bowels, previously regular, became consti-

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pated, and she had some fever. On Friday, February 7th, she began to menstruate. I was called to see her at 4 o'clock P.M. on Saturday, and found her with an anxious countenance, moaning and complaining of excessive pain in her abdomen, which was enlarged and exquisitely tender, more especially in *left* iliac fossa. Some tympanitis. She had not vomited, but had felt some nausea. Her bowels had been moved by injections on Friday. She had passed no urine for twelve hours. Bladder somewhat distended. Decubitus dorsal; pulse 128, small, threadlike. Respiration 28, shallow, entirely thoracic. Tongue coated with a whitish fur; papillæ prominent. Skin hot and dry. Heart and lungs healthy. Urine normal. Ten drops of Magendie's solution of morphia were immediately administered and hot cloths applied to the abdomen. Fluid nutrients ordered. During the night she was seen every two hours. Magendie's solution administered till an appreciable effect was produced. As she complained of excessive thirst, small pieces of ice were allowed. February 9th, 8 A.M. Tympanitis increased; tenderness somewhat greater; legs drawn up. Pulse 118, *fuller;* respiration 16. Pupils contracted, patient drowsy. She came under influence of morphine slowly, and the doses were increased. Other symptoms the same. Urine drawn 9 o'clock P.M. Dr. Flint suggested a trial of ice-cold applications. The other treatment has been the same during the day. Vomiting of bile in small quantities, frequently repeated. Pulse 133, very weak. Respiration 30, irregular. Magendie's solution, ℥xv., administered hypodermically. Iced whiskey and water allowed. Topical applications discontinued. 10.30. Vomiting stopped. Morphine continued as before. Pulse 120. Respiration 20. 12, midnight—better. Pulse and respiration same in frequency, but better in character. Magendie's solution as before. February 10th, 2 o'clock A.M.—Patient in collapse; eyes sunken; nose cold and pinched; chin cold; blue rings around eyes; extremities livid and cold. Tenderness entirely gone, firm pressure giving no pain; persistent vomiting of bilious matter; great restlessness and jactitation; pulse running and gaseous; respirations very rapid and shallow, could not be counted. Whiskey and nutrients ordered by rectum. Hot bottles to feet. Hypodermic injections continued. She did not rally, and died at 12.30 P.M., retaining consciousness till about 10 o'clock.

Autopsy, February 11th, twenty-six hours after death.

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Thorax.—Some fluid in both pleural cavities; lungs and heart healthy. The cavity of the abdomen contained a large quantity of a sero-purulent fluid; nothing abnormal on the parietal layer of the peritoneum. The greater omentum was adherent to the intestines, which were agglutinated together and adherent to the lower border of the liver, spleen, and bladder. The adhesions were easily broken up, leaving in some places on the separated surfaces a soft, reddish layer of lymph; in others white, and of considerable thickness. In removing the intestines the peritoneal covering was frequently torn off, leaving the muscular coat exposed. The surface of the intestines from the ileum down presented an arborescent injection of bright arterial hue. The appendix vermiformis was much inflamed in the part nearest the colon, but healthy in the outer two-thirds. The centre of the inflamed portion was covered with a thin layer of lymph, on removing which two perforations were discovered, one the size of a pin's head, the other about one-third of an inch in diameter. The appendix was filled with softened fæces. There was no inflammation of the caput coli. The bladder and the uterus and its appendages were thickly covered with lymph. The ovaries and Fallopian tubes were congested. The left ovary contained a recently ruptured Graafian vesicle, filled with a firm clot. The mucous membrane of the uterus was congested. Kidneys healthy.

CASE 8. *Slowly-developed Peritonitis, following Perforation of the Appendix.*

By DR. DASH, 1867.

A young man, aged eighteen, was attacked, on the 22d of December, with pain and soreness in the abdomen, referred to the right iliac region, which increased; but he did not take to his bed until the 26th. He then presented symptoms pointing strongly towards peritonitis, but not sufficient to found a positive diagnosis upon; but, on the day following, these symptoms were well declared. There was rigidity of the abdominal walls, moderate tympanitis, tenderness on pressure; pulse 116. The pupils were somewhat contracted from opium. The disease progressed, the tympanitis

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became more marked, the pulse more frequent, and death finally ensued on the 28th.

Autopsy.—General peritonitis; muddy liquid in the peritoneal cavity; recent lymph agglutinated the intestines, while the whole serous membrane was covered with an arborescent redness. The vermiform appendix was adherent to the abdominal walls, had a perforation about its centre, and within its cavity were two solid bodies, apparently fæcal in character, one of which was somewhat oval, the other more rounded.

The development of the peritonitis was so gradual that it was at first supposed that it was idiopathic and independent of perforation. The treatment was by opiates freely and persistently administered.

CASE 9. By DR. CONANT, 1862.—Dr. Conant exhibited a small biliary calculus from a patient who was attacked with what was supposed to be colic. The pulse was about 80, the pain very severe, with tenderness over the epigastrium. Morphine was administered, and, although two grains had been taken, immediate relief was only obtained by the inhalation of chloroform. But the patient commenced to sink, even under the use of stimulants and beef-tea. The symptoms began to grow alarming, with considerable pain in the epigastrium; finally collapse, semi-comatose condition, complete coma, gradual sinking, and death. The peritonitis had its origin in ulceration of the appendix vermiformis, caused by what appeared to be a gall-stone covered with inspissated mucus.

Dr. C. had presented five cases of perforation of the appendix vermiformis. One of these occurred in a medical student, a bean lodging in the process. The pain in this instance was localized, and death occurred from hemorrhage, the result of an ulceration of one of the branches of the ileo-lumbar artery. A second death by the same means occurred in a minister, who had also eaten beans. In the medical student the trouble likewise commenced the second day after. A third case was that of a sailor with a severe attack of peritonitis, which subsided; but ten months subsequently a second attack proved fatal. On post-mortem examination it was shown that the foreign body had caused the first attack, and had remained

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during all that interval in the appendix vermiformis without causing any trouble. The old adhesions were very firm and tough.

Dr. G. T. Elliot thought it afforded an illustration of the fact that the pain is not always confined to one particular locality.

Dr. Krackowizer related a case of a man who, a year ago last summer, was attacked with general abdominal peritonitis, starting from the right iliac region. An abscess formed in this locality, opened, and healed. From the latter end of November until the end of the following February there were six or seven similar attacks, which, as in the first instance, could not be referred to any apparent cause. The disease was always amenable to opium. At the last attack an abscess again formed in the right iliac region. This was opened, discharging a considerable amount of matter. On probing the wound with the finger, the abscess was found to extend no deeper than between the external and internal oblique muscles. One morning, on removing the dressings, the patient's attention was attracted by the falling of some hard substance into the basin. On examining it afterwards it was found to consist of an enterolite, covered over with a whitish material. The abscess healed rapidly after this, and the patient has never suffered from a subsequent attack.

Case 10. By Dr. D. S. Conant, 1858.—In a medical student who had colic and pain in abdomen, followed by improvement; then a severe chill, succeeded by three or four more every day, but no fever. At the end of three weeks he commenced to sink; had only a little pain in right iliac region, and some dulness there. An abscess was suspected. Death.

Autopsy.—Abdomen normal, except a little lymph near the cæcum, behind which there was an opening three-fourths of an inch in diameter, leading into a large cavity containing a pint of decomposed blood; also one-half pint of fresh clots between the bladder and rectum. The appendix was destroyed or ulcerated off close to the cæcum. A bean was found in the lower cavity or detached part.

Case 11. By Dr. Alonzo Clark, 1861.—In a young lady, who was attacked four days before with pain almost wholly in the lower abdomen, just above the pubis. There was no tympanitis for three

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days, but uncontrollable vomiting of green matter almost from the first, and rapid pulse. The severe pain was apparently relieved by pressure at first, but soon the bowels became excessively tender. The knees were drawn up, features pinched, and pulse 150. Death.

Autopsy.—The appendix was perforated near its extremity, and also one-half inch above, with gangrene between. A mass of hard fæcal matter was seen at one opening. There was adhesive inflammation around; a quart of muddy pus in the pelvis, and general peritonitis.

CASE 12. By DR. GUSTAVUS A. SABINE, 1847.—There was pain in the *left* iliac region for five or six days; very little on the right; then felt something give way internally, and she died in fourteen or sixteen hours.

Autopsy.—Exudation of lymph over all the intestines; ulceration of vermiform appendix. A large abscess, extending from the right to the *left* lumbar region, across the pelvis, had burst into the abdominal cavity, causing peritonitis. There was no fever at first. Uterus three times as large as natural.

CASE 13. By DR. WILLARD PARKER, 1851.—The appendix vermiformis was ulcerated off, and found loose in the abdomen. The attack was apparently caused by hardened fæces, or the peculiar wax-like substance often found in the cæcum. In a lad æt. 14.

CASE 14. By DR. WILLARD PARKER, 1851.—The appendix vermiformis was ulcerated, without the presence of a foreign body that could be detected.

CASE 15. By DR. JOHN P. BATCHELDER, 1851.—The appendix vermiformis was ulcerated from the presence of bones in it; in a child.

CASE 16. By DR. ALFRED C. POST, 1857.—The appendix vermiformis was found ulcerated in a young lady æt. 18, who died on the third day, of perforation and peritonitis. Eating peanuts seemed to be the exciting cause.

CASE 17. By DR. JOHN P. BATCHELDER, 1857.—The appendix vermiformis was ulcerated, causing death, in two cases, from the lodging of lumbricoides in them.

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Case 18. By Dr. Thomas M. Markoe.—The pain was localized at first near the cæcum; twenty-four hours after, signs of general peritonitis came on, and recovery took place. But a month after, the child died of some other disease. Perforation of the appendix had evidently taken place; there were general adhesions of the intestines, and the evidences were indisputable that a case of peritonitis from perforation had been entirely cured.

Case 19. By Dr. Lewis A. Sayre, 1861.—There was sphacelation and rupture of the appendix, in a man æt. 35, who had sudden pain while in good health, increasing rapidly. He had not been constipated. A small tumor soon appeared near the cæcum; no fever. Calomel and citrate of magnesia caused vomiting, but not purging; but fever with tenderness of abdomen set in, especially in the right iliac region, where there was some distention. The vomiting became a prominent symptom, and was attended with pain and abdominal tenderness; Croton oil was rejected, and injections through a long tube were useless. Great distention of the abdomen; tympanitic sound, except over the cæcum, and tenderness, especially over it. The breathing purely costal; the pulse quick, feeble, and irregular; the vomiting and regurgitation were frequent of dark substances. The mind was clear. Death occurred on third day.

Autopsy: Much muddy, yellow, fæcal-smelling fluid was found in the abdomen; also gas. The bowels were distended, vascular, and adherent to the abdominal walls and each other by recent lymph. The appendix was distended and black, and near its junction with the cæcum there was a rupture through which air and fluid escaped from the bowels. The cavity of the appendix was filled with a hardened mass, which appeared to be solid fæces. The cæcum and ileum were healthy.

Case 20. By Dr. Wm. H. Van Buren, 1857.—The appendix vermiformis was perforated with extensive, but latent peritonitis, in a young man who had had pain in his bowels for three days. He recovered; but a week after, very violent pains set in about the umbilicus. Nine grains of opium were given, but death occurred in six hours. The pulse was 65, and there was no symptom of peritonitis except pain.

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Autopsy.—Intense peritonitis over the whole abdomen; adhesions in several places, most firm about cæcum; appendix much larger than usual, with a *gall-stone* impacted in it, and a perforation excited by it.

Case 21. By Dr. Noah C. Levins, 1858.—In this case the patient had had a tumor in the right flank, and peritonitis, but recovered; still the tumor did not subside, and for two or three years there was every now and then a lighting up of new inflammation. Death occurred four or five years from the first attack, from perforation of the vermiform appendix.

Case 22. By Dr. Noah C. Levins, 1858.—An abscess formed and a foreign body was discharged through the abdominal walls, which had every appearance in form and shape of coming from the cæcum. Recovery then took place.

Case 23. By Dr. John T. Metcalfe, 1856.—A girl, æt. 16 years, had pain in the right groin for a week; then great pain and tenderness in the abdomen. Her knees were drawn up; the pulse was 120; she was put under opium treatment. The pain was greatest in the right iliac fossa; there was obstinate vomiting; partial collapse set in, and death ensued in twelve hours.

Autopsy.—Yellow fetid fluid in the abdomen. A round perforation, one-quarter of an inch in diameter, was found in appendix, apparently caused by an impacted date-stone.

Case 24. By Dr. Alfred C. Post, 1857.—In a young lady, æt. 23, cretaceous matter was found in the appendix; its mucous membrane was congested and perforated.

Case 25. By Dr. Edmund R. Peaslee, 1856.—In a lady with a large ovarian cyst. There was a concretion of phosphate and carbonate of lime, combined with hardened mucus and fæcal matters, three-quarters of an inch long and one-third of an inch in diameter, which had ulcerated through the appendix vermiformis, which was pultaceous throughout, as was a portion of the cæcum. Fæces and intestinal gases had escaped into the peritoneum, and three pints of the fluid usually present in cases of acute peritonitis were noticed. There was also a large ovarian sac containing ten or twelve quarts of milky fluid.

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Case 26. By Dr. Alonzo Clark, 1858.—A child, aged 11, had pain in the iliac fossa, and hardness there for some days, followed by tenderness all over the abdomen, and excruciating pain. There was dulness on percussion over the right iliac region, and a doughy feel. Opium was given freely, followed by improvement and recovery, though there was still a hardness left about the cæcum. Perforation had doubtless taken place, but local peritonitis had probably prevented general inflammation. Still it is difficult to distinguish peritonitis secondary to impaction of the cæcum with fæces, from that which arises from perforation. The former cases may recover, the latter generally die. Several cases have yielded to opium, etc., but probably there was impaction only. Only one of his cases of true perforation had recovered, and died afterwards of some other disease.

Case 27. By Dr. John W. Warner, 1856.—A man, æt. 27, had had occasional attacks of indigestion, constipation, peritoneal irritation, vomiting, pain, and hardness in the iliac region, but always recovered. A relapse was followed with pain in the right iliac and hypogastric regions, extending down to the groin, and increased by pressure. Calomel, opium, and blisters were used, but enlargement of the inguinal glands took place, with gradual descent of the pain to the inguinal region. There was bogginess of the integument near the external abdominal ring, and the gradual rise of a tumor to the size of a walnut. This was punctured, and a gill of purulent matter discharged, with some fæces, and flatus. Six hours after the operation one-half pint of fluid was discharged per anum, with tenesmus, followed by vomiting of blood, exhaustion, and irritative gastritis. He then improved till his appetite became almost excessive; but he finally died exhausted from the discharge, as fæces were constantly discharged from the artificial opening.

Autopsy.—The external abscess communicated with a fæcal abscess behind the peritoneum, and also with the cæcum and colon, by other openings. The appendix was ulcerated.

Case 28. By Dr. John T. Metcalfe, 1855.—A young gentleman æt. 19, while comparatively well, had slight colicky pains in the abdomen, with a little fever and nausea, furred tongue, and sallowness of skin. A purgative did not operate, and the next day he had a rigor, followed by a restless night, and general uneasy sensation

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over the whole abdomen. The next morning his pulse was rapid, the surface cold and clammy, the abdomen tympanitic and tender, the face collapsed, and the pulse 150. Opium treatment for peritonitis from perforation was instituted, and he became tranquil, his skin warm and moist; the pulse fell to 120, and the respiration became natural; but tympanitis, abdominal tenderness, and eructations of gas remained. Beef-tea, brandy and water, milk-punch were given, but the pulse failed, and the skin again became cold. His intelligence was good up to a few minutes before death, which was easy.

Autopsy.—A few ounces of turbid, brownish yellow fluid with fæcal odor was found in the abdomen. There was arborescent injection of the peritoneum. The caput coli and appendix vermiformis were adherent to the mesentery, which was intensely congested. A hard body, as large as a man's middle-finger, was found impacted in the appendix, about one-quarter of an inch from the cæcum. Beyond, the appendix was dilated in its whole length by fluid. Opposite the plug, a perforation from sloughing of the walls of the vermiform process had taken place, allowing the escape of the intestinal contents into the abdomen. The obstruction was a hardened, stercoral mass, one and one-half inches in diameter, in which were imbedded small bits of undigested vegetable fibres, and small fruit-seeds, like those of the strawberry.

Case 29. By Dr. George T. Elliot, 1858.—A boy æt. 11, who had received a blow upon the stomach, vomited after dinner, followed by rapid pulse, and paroxysmal pain all over abdomen. The opium treatment was used, with improvement. There was no tympanitis, but some difficulty in urinating. Also no pain or tenderness over the appendix. Rather sudden collapse was followed by sudden death in a few days.

Autopsy.—The intestines were adherent and covered with lymph, in the right iliac region, where there was a large cyst, containing pus, and a few grains of fæculent matter from a perforation of the appendix. There was severe peritonitis in the pelvic region, and collections of pus were bound down by adhesions in two places. The appendix was attached to the cæcum by adhesions, and there was a hard body in it, resembling hardened fæces. The patient took twenty-one grains of opium in four days, with great

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relief to pain, and procurement of sleep, attended by no delirium or headache. In another case, treated without opium, the sufferings were terrible. In this case there was an entire absence of all signs by which one could determine when the disease commenced, or what was its probable cause. It was not certain there was more pain in the right iliac region than elsewhere.

Case 30. By Dr. Noah C. Levins, 1858.—A piece of bone lodged in the cæcum and appendix, had formed an abscess, which pointed towards the inguinal canal, ulcerated, and finally discharged the bone.

In ulceration of the vermiform appendix it is very uncommon to have attention directed to the right iliac region. In over forty cases, more than one-third of the patients made no allusion to it.

Dr. Alonzo Clark remarked that dulness on percussion at the seat of perforation is a common occurrence and a good diagnostic mark. Very soon after the rupture the consequent suppuration is often enclosed by adhesive inflammation leading to a fulness and dulness on percussion; this remains for several days in some cases, or until the accumulation becomes so great that the adhesions are broken down and general peritonitis occurs. The foreign, or fæcal accumulation may be a long time in forming in the appendix, for in one case the intestinal concretion which caused the perforation had seven concentric rings of calcification, between each of which there was soft material. The formation of this mass was distinctly traced to two summers ago, in this wise, viz.: one of the inner laminæ contained strawberry seeds, and some sprigs from raspberries; then there were some layers which contained none of them, and then again others which enclosed the same remains of berries. No berries had been taken during the winter in the form of sweetmeats; hence, it was a fair inference that they were taken in their fresh state at two different seasons.

Case 31. *Post-mortem Appearances of an Appendix Vermiformis which had been the Seat of an Abscess Two Years previous, and had been operated upon.*

Dr. Gerardus N. Wynkoop, 1867.

On the 4th of December, 1865, Dr. Parker operated on the

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patient by an incision. Some pus, and a small calculus made their exit through the wound, and was found to consist of uric acid, biliary coloring matter, and débris of muscular food. By Jan. 16th the tumor had disappeared, leaving only an indurated hardness, but the patient was again attacked with violent pain, vomiting, etc., as at the first. On the 17th, enlargement was noticed over the iliac fossa, and on the 20th I opened it, and a great quantity of pus was discharged. The patient recovered in a short time, and has never had any more trouble in that neighborhood. In the early part of December, 1867, he was attacked by fever of no well defined form, of which he died.

Autopsy, twelve hours after death. The appendix was attached by strong adhesions to the anterior abdominal wall, at the external limit of the right inguinal region. The cæcum was also firmly bound to the wall of the abdomen and iliac fossa by adhesions. The appendix was given off from the cæcum normally, and was four inches in length, but was stretched out along the cæcum, and strongly adherent to it. The point of attachment to the abdominal wall was an inch to the right side of and a little below the cicatrix of the former incisions. The contents of the abscess, therefore, must have worked their way for an inch or more between the abdominal muscles, before they showed any inclination to point. The parts being removed, it was found that the entire free surface of the appendix was covered with a thick wall of false membrane, which was thickest at about its middle portion, and presented a tubular dilatation. Upon dissecting off this false membrane, the appendix beneath presented nothing abnormal in appearance until the point of dilatation was reached. Here there was no true wall, the muscular and mucous coats being entirely absent. This dilatation extended three-fourths of an inch down the canal. Below the dilatation the appendix was normal as to its coats, and it was found to be pervious for two inches and a quarter. From this point for a quarter of an inch it was entirely occluded, when it opened again into the dilatation spoken of above. The cavity was filled with a brown mucous secretion. The canal again became obliterated half an inch from the free extremity of the appendix, which from this point was converted into a solid cord. That portion of its wall which was attached to the cæcum was normal as to its coats.

This specimen illustrates most perfectly the *preservative* efforts

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of nature. Undoubtedly the calculus, which escaped when Dr. Parker operated, was the exciting cause of the difficulty. By it, inflammation, first of the mucous, then of the muscular, and finally of the serous coats of the appendix, was induced. The inflammation of the two inner coats went on to ulceration and destruction of their substance, and was limited in its extent; while that of the serous coat involved a greater area and terminated in the effusion of plastic lymph, which glued not only the appendix, but also a large portion of the cæcum to the abdominal wall.

Furthermore, this effusion of plastic material did not serve a temporary purpose only; but, having accomplished its end in keeping the contents of the abscess out of the peritoneal cavity, it was destined to remain as a lasting wall for the breach of substance made by the original ulceration and destruction of the part.

ENTEROLITE.

Dr. Stephen Rogers, on behalf of the Committee on Microscopy, made the following report:

The specimen of substance which had produced fatal obstruction of the bowels, presented at a recent meeting, has been carefully and repeatedly examined by the committee.

It will be remembered that it was ovoid in shape, and when presented measured about one, by one and three-fourths inches in its diameters. It also will be recollected that it presented numerous deep and gaping fissures reaching from the surface down to and exposing a nucleus. When slightly warmed it furnished a decided though not strong stercoraceous odor. Its color on the surface is chestnut, its deeper portions varying from nearly white to nearly black, generally a lightish brown. The nucleus is nearly one-third of an inch in diameter, is of calcareous hardness, very dark brown, and when thrown into dilute nitric acid dissolves in part, with effervescence; leaving a residue which is totally insoluble in water, but which is mostly soluble in alcohol, producing a very dark green tincture.

The mass of the specimen is formed by numerous concentric layers about this nucleus, while at the same time there is a radical plan observed in its formation, so that it fractures in straight lines from the centre to the circumference. This portion of the formation is to a great extent dissolved by alcohol; leaving a dark yellowish

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residuum which has no definite formation, and is soluble in neither acid, alkaline, nor hot or cold ethereal fluids, such as alcohol, chloroform, and sulphuric ether.

When the alcoholic solution, which has an amber color, is allowed to slowly concentrate, it deposits a considerable amount of a fine white crystalline substance, which, if examined by the microscope, is shown to be made up of two leading forms of crystals; the one a tabular and notched crystal so characteristic of *cholesterine;* the other long, prismatic, or beam-like crystals, said to characterize *excretine*.

It is totally unaffected by water or glycerine, and but very slightly soluble in chloroform; insoluble in acids, and very slightly soluble in ether. Liquor potassæ affects it somewhat, by removing a certain portion of fatty principle. When burned, its smoke emits a faint, but not disagreeable odor of burning animal matter, and a black copious ash remains, which is partially dissolved, with effervescence, by dilute nitric acid. Its marked diminution by drying, shown by the fissures and the properties above described, indicates the specimen to have been an intestinal formation, an *enterolithus* or *enterolite*. Its nucleus may have been some substance taken with the food, some article of medicine, perhaps a pill, or possibly a concretion of biliverdin, but its true composition the committee have not been able to ascertain.

Case 32. *Gangrene of the Vermiform Appendix.*

By Dr. Willard Parker, Jr.

I. N., æt. 18, a young man of naturally strong constitution and of good habits, went to bed on Wednesday evening, May 16th, in apparently his usual health. About two A.M. on Thursday he awoke in a moderate chill, which was followed by an attack of nausea and purging, which continued during the night.

On Thursday morning he was found with rapid pulse, some nausea, *slight general* tenderness of the abdomen, with but little elevation of temperature as perceived by the touch—the thermometer not being used.

To correct the nausea, bismuth and soda were ordered, and lime-water and milk; while locally mustard was used.

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In the evening, the patient's condition remaining about the same, this treatment was continued.

On Friday morning, the nausea being relieved, a powder containing calomel, gr. vii., and pulv. Doveri, gr. iii., was given, followed by a dose of castor-oil. This operated only once fully; later, an enema of warm water brought away a mass of greenish fæcal matter.

After Friday, A.M., there was no nausea; the pain abated; there was no tenderness, either local or general, of the abdomen; the only unfavorable symptom being the continued acceleration of the pulse.

Saturday, A.M., the patient's condition appeared still more favorable; he was very comfortable, lying on *either* side without pain; there was slight abdominal distention, to relieve which an enema was ordered, the administration of which was followed by *marked prostration.*

At nine P.M. on Saturday, Dr. Parker was called in consultation. With the exception of the very marked acceleration of pulse, he found no very alarming symptoms, except slight tenderness over the abdomen not specially localized. Supporting treatment was advised, but the patient began to fail, and died about five A.M. on Sunday—on the fourth day.

Autopsy.—The abdominal cavity presented a healthy appearance, there being simply a slight injection of the omentum just above the right iliac fossa. *Slight* deposits of recently formed false membrane were observed around the caput coli. The appendix was about five inches long, swollen, and *gangrenous* in its lower two-thirds; and with a small portion of the omentum, it had evidently, during the earliest stages of the attack, formed a *very feeble* adhesion with the internal abdominal ring. There was *no* perforation.

The appendix, at about the junction of its upper and middle third, contained a mass about three-quarters of an inch in length and about one-third of an inch in diameter, which was conical in shape, much resembling a Minié ball, and had been so tightly grasped by the walls of the appendix that the place where it lay showed a well-marked depression in the mucous membrane. This mass proved on examination to be an accumulation of fæcal matter around a nucleus formed of a seed about the size of a canary-seed. There was no tumor discoverable, or localized tenderness during life; nor on first laying open the abdomen was the appearance of the omentum such as to specially point to the right iliac fossa as

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the seat of trouble. Why the presence of so small a foreign body in the appendix should have produced gangrene, is an interesting point.

By a singular coincidence, in June, 1874, a younger brother of the patient had an abscess of the appendix, which was relieved on the ninth day by an operation by the late Dr. Gurdon Buck. Within a few days after the incision, a piece of calcareous matter about the shape and size of a date-pit came out of the opening.

CASE 33. *The Significance of Calcareous Concretions in the Vermiform Process.*

BY DR. DASH, February 24, 1869.

The third specimen consisted of a calcareous concretion found in the appendix vermiformis. He only exhibited it for the purpose of calling attention to the frequent existence of foreign substances in that locality, without any symptoms during life. He remarked that a concretion of some sort existed in that situation in one out of every twenty autopsies that were made, and that they did not appear to excite any local difficulty by their presence. In this connection he further stated that ten years ago he had collected the appendices of fifty male and fifty female subjects, with the view of ascertaining which were the longest, and the conclusion arrived at was that those in the female averaged a half-inch more than the male.

5.--ANOMALIES OF THE APPENDIX VERMIFORMIS.

CASE 1. DR. ISAACS, January 24, 1850, presented an appendix eight and three-quarters inches long.

CASE 2. DR. LEWIS SMITH presented an appendix vermiformis six inches long, removed from a mulatto child two years old, who died of broncho-pneumonia.

CASE 3. DR. GUSTAVUS A. SABINE presented in 1849 an appendix vermiformis with a small serous cyst attached to it.

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TABULAR STATEMENT OF CASES OF PERFORATION OF THE VERMIFORM APPENDIX.

BY DR. EDWARD DELAFIELD.

No.	Sex.	Age.	Symptoms.	Duration.	Lesions.	
1	F.		Pain in LEFT iliac region. Slight febrile excitement.	6 days.	Intestines glued together by recent lymph. Vermiform appendix ulcerated through at its base. A large abscess extended across the pelvis from right to *left* lumbar region, and had ruptured into the abdominal cavity.	Dr. Sabine, Oct. 27, 1847.
2	M.	Young Man.	Pain in abdomen very severe for 6 hours before death; no other symptoms of peritonitis.	6 hours.	Signs of recent peritonitis. Ulceration of the appendix caused by a gall (?) stone impacted in it.	Dr. Van Buren, July 14, 1852.
3	M.	19	65 hours before death slight pain and nausea; 40 hours before death a rigor, followed in a short time by pain and tenderness of abdomen, tympanitis, quick pulse and respiration.	65 hours.	A mass of impacted fæces in the appendix, near to which was a perforating ulcer in the wall of the appendix. Lymph and serum in the abdominal cavity.	Dr. Metcalfe, June 27, 1855.
4	M.	Child.	Pain in abdomen began 8 days before death. The pain increased with tenderness, vomiting, collapse, and death. The bowels were freely moved by cathartics.	8 days.	The appendix filled with hard fæces, intensely inflamed and perforated. Recent lymph and sero-purulent fluid in the abdominal cavity.	Dr. McCready, June 11, 1856.
5	F.	7	Symptoms of peritonitis.	3 days.	The appendix filled with impacted fæces, perforated at its junction with the colon. Sero-purulent fluid in the abdominal cavity.	Dr. Enos, June 11, 1856.
6	F.	16	Pain in the right groin for 7 days, followed by all the symptoms of acute peritonitis for 3 days.	3 days.	The appendix contained a date (?) stone. There was a perforation in it ¼ inch in diameter. The peritoneal cavity contained lymph and purulent serum.	Dr. Metcalfe, Jan. 27, 1858.
7	M.	24	Pain in the abdomen, followed by rigors.	3 weeks.	The appendix was destroyed close up to the cæcum. Behind the cæcum was a large abscess, containing blood-clots, and also a bean.	Dr. Conant, April 14, 1858.
8	M.	11	Received a blow in the abdomen; followed by vomiting, and, in a few hours, by all the symptoms of peritonitis.	6 days.	The appendix contained impacted fæces, and in its lower portion was a small perforation. The intestines were covered with lymph, and there were two circumscribed collections of pus near the cæcum.	Dr. Elliot, April 14, 1858.

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9	F.		Pain and tenderness in the lower part of the abdomen, with incessant vomiting.	5 days.	The appendix contained hard fæces, and was perforated by two small ulcers. Over the entire peritoneum were recent lymph and purulent fluid.	Dr. Clark, Feb. 27, 1861.
10	M.	35	Sudden pain and tenderness in the right iliac region, tympanitis, vomiting, and febrile movements.	3 days.	The appendix contained hardened fæces. It was black and gangrenous over its entire length; near its junction with the cæcum was a perforation.	Dr. L. A. Sayre, Sept. 11, 1861.
12	M.		Sudden pain in epigastrium, followed by coma and death.	5 days.	Ulceration of appendix and evidences of general peritonitis.	Dr. Conant, Oct. 8, 1862.
13	M.	18	Symptoms of very gradual invasion of peritonitis, not localized.	6 days.	Perforation of appendix and general peritonitis.	Dr. Flint, Feb. 13, 1867.
14	F.	17	Sudden pain in the abdomen, followed by tympanitis, tenderness in LEFT iliac region, rapid pulse, vomiting, collapse, and death.	7 days.	Perforation of appendix and general peritonitis.	Dr. Young. Feb. 12, 1868.
15	M.	50	Pain in right iliac region, with fever, cessation of all symptoms for 6 days, and then sudden peritonitis and death in 24 hours.	10 days.	A large abscess around and above the appendix and opening into the peritoneal cavity. Several small perforations of the appendix.	Dr. Jacobi. Oct. 13, 1869.
16	M.	33	Sudden pain over a circumscribed spot in the right iliac region; improvement for a short time, and then symptoms of general peritonitis.	A few days.	General peritonitis, perforation of the appendix.	Dr. Eager, Jan. 26, 1870.

RÉSUMÉ.—The sex is given in twenty-eight cases, of which twenty-one were males and seven females.

The males were one child; a boy aged 11 years; one, 14 years; one, 15 years; two, 18 years; one, 19 years; the ages of three young men are not given; but four others were respectively 24, 27, 30, and 35 years old; and five were middle-aged.

Of the females, one was 16, another 17, a third 18, and the fourth 23 years old. One is described as middle-aged.

The first attack was fatal in about twenty cases. There were four recoveries. Three cases had had one previous attack; three had had two previous attacks; two had had repeated attacks; one had had occasional attacks; and one, six or seven attacks.

The pain was in the *left* iliac region in five cases.

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6.—CASES OF PERITYPHLITIS.

Case 1. *Perityphlitic Abscess.*

By Dr. Robert Weir, November 24, 1875.

Dr. Weir presented a specimen from the subject of an operation for perityphlitic abscess. The patient was a young man, aged nineteen years, who was taken sick last May with what appeared to be malarial fever, which lasted three or four weeks. Following this attack he had diarrhœa, which, although not severe, was quite persistent. He was admitted into the hospital October 8th, presenting a tumor in the right iliac fossa, which he had noticed a week before. It was easily recognized, involving the whole right iliac fossa, reaching up to the umbilicus, and losing itself over the region of the ascending colon. It was tender to the touch; temperature, 98½° F. The diarrhœa presented no extraordinary symptoms. A rectal examination disclosed an indistinct tumor, high up towards the fossa. The patient having anasarcous extremities, and being a little below par, remained in the hospital until the 12th, when, as the tumor was increasing in size, it was determined to use the aspirator, which was accordingly done. The needle was introduced about an inch and a half anterior to the anterior superior spinous process, and a drachm and a half of pus was obtained; when the instrument became choked and was withdrawn.

The following day the patient was placed under ether; the aspirator was again used, not only for the purpose of confirming the diagnosis, but as a guide to the knife. The incision was an inch and a half in length, and was carried across the centre of the needle through the abdominal walls. Then the aspirator was used as a guide, followed by the forefinger. The cavity of the abscess was opened and pus was evacuated, which did not present the characteristic odor of that discharged from an abscess directly or indirectly connected with the bowels; but the possibility of its being of this nature was beyond a doubt. The next day fæcal matter was discharged, and continued to do so for a week afterwards. At the end of this time the discharge lost its fæcal odor, became quite watery, and was then mixed with white particles

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looking like undigested milk. The probability of this discharge coming from the small intestine was thought of, but its possibility under existing circumstances hardly entertained.

The wound finally closed, and the patient went out on a pass on the 29th. When he returned he felt badly. On examination, it was noticed that the tumor had increased in size. Unequivocal symptoms of peritonitis soon after showed themselves, and he died within a week afterwards.

At the *autopsy* there was found general peritonitis, the intestines on the right iliac fossa being firmly matted together. It was seen that the incision of the operation was opposite an opening (or rather the cicatrix of one), which had existed in a distended portion of the small intestine. This portion was in the jejunum, about twelve feet from its origin. The distention was due to a new growth, which so softened the intestinal walls as to insure ulceration at different points and perforation at the place previously referred to. *The caput coli, although imprisoned in the mass, was perfectly healthy.*

Case 2. *Perityphlitis—Operation—Recovery.*

By Dr. Henry B. Sands, June 10, 1874.

Dr. Sands presented four small fæcal calculi discharged from the cavity of an abscess, the result of perityphlitis depending upon ulceration of the vermiform appendix. The patient was a gentleman, aged 41, who was attacked with illness on Thursday, April 23d. He left the house to go to his place of business, in his usual health, which was excellent; but while returning home that afternoon he suffered from pain which became diffused over the abdomen. At that time he had nausea and vomiting, and he also felt cold, but did not have any chill. The vomiting subsided after a few hours, as did also the nausea, but the pain in the abdomen continued and became most severe in the right iliac fossa.

The patient was seen by Dr. Ball the following evening, when he presented the symptoms of localized peritonitis in the right iliac fossa. Dr Sands saw the patient with Dr. Ball on Sunday, April

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6th, three days after the attack. There was then no decided change in the symptoms. The belly was slightly swollen throughout, but it was not very tense. A tumor the size of the fist could be felt, although not seen, in the right iliac fossa, in the situation of the cæcum; it was quite firm, even, non-elastic, and very sensitive to pressure.

The question arose as to the nature of this swelling, and four different diseases were thought of. It was thought possible by Dr. Ball that the case might be one of intussusception, of internal hernia, of impaction of fæces in the cæcum, or finally, connected with disease of the vermiform process. To the latter diagnosis both gentlemen were strongly inclined. The signs of intussusception were wanting; no bloody stools—in fact, no discharge from the bowels —since the attack. Hernia was excluded because of the disappearance of vomiting after the first day or two.

For a week from the time of his attack the patient presented the signs of peritonitis; but this disease at no time was extensive or severe. The temperature ranged from 101°–102°, and the pulse from 90–100. The distention of the abdomen increased until the fourth day, and then began to subside. The bowels were not moved until the sixth day, when it was thought best to give a cathartic of castor-oil, followed by an enema. By these means three copious evacuations were obtained, which produced at first a feeling of exhaustion, but the ultimate effect was salutary.

On Thursday, one week after the attack, there was a very evident amelioration of the symptoms. The swelling of the abdomen subsided; there was no tenderness except in the right iliac fossa, and the pulse and temperature became normal. The tumor did not disappear, but there was reason to hope that a cure might occur by resolution. From Thursday until the Monday following, nothing unusual occurred; but on the latter day (the twelfth of the disease) the patient had a chill, marked, but not severe, and on Tuesday another chill of the same character. The temperature then rose to 102°, and coincident with this change in the symptoms there was an alteration in the tumor, which became larger and softer, reaching well up towards the umbilicus and the lower margin of the thorax.

The concurrence of these general and local symptoms were considered sufficient to warrant the operation by incision proposed

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some years since by Dr. Willard Parker. The operation was performed by Dr. Sands, and an abscess was found and emptied. The abdominal walls were very thick, and it was not until the transversalis fascia was reached that any fluctuation could be discovered. A hypodermic syringe was then introduced into the tumor, and the presence of pus ascertained; then an opening large enough to admit the finger was made and six ounces of fetid pus evacuated. After this opening had been made and the pus had escaped, the cavity of the abscess was explored, all its limits being reached except above. During this examination several fæcal concretions were removed, and subsequently, day by day, as the result of washing the abscess with warm carbolized water, more concretions escaped, making eight or nine in all. The largest of these was equal in size to a large pea, and, on being cut open, was found to contain a nucleus of fæcal matter arranged in concentric layers.

The symptoms were immediately relieved by the operation. The contact of the discharges with the connective tissue produced some sloughing, but this did not interfere with the general well-being of the patient. He recovered so as to be able to sit up on the fourteenth day, and at the time of reporting the case the patient was quite well and on his way to Europe.

While the concretions continued to escape there was some fear that a fistula might exist, which it would be difficult to close. The sequel, however, proved that these concretions existed in the vermiform process at the time of its ulceration, and that they had all escaped into the cavity of the abscess.

In conclusion, Dr. Sands remarked that the question had often been asked, when was it proper to perform this operation? The experience gained since the operation was first performed has taught us that not unfrequently cases of this sort terminate by resolution. He had seen two of this kind himself, and had met with a physician who had had two in his own practice. He thought that the signs which were present in this case were the ones which would generally be found to guide us; that is to say, a patient has an attack of circumscribed peritonitis in the right iliac region, from which he recovers under treatment, when of a sudden he is seized with a chill, a rise of temperature, a rapid diffusion of the swelling and the other symptoms of abscess. If he was not mistaken, these were the signs which determined Dr. Parker to perform his first

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operation. There was no question that the operation should be performed when the proper indications were present, as otherwise death would ultimately result either from the bursting of an abscess into the peritoneum, or by extensive burrowing throughout the abdomen.

Dr. Janeway had seen two cases of this trouble in which a thrombus of one of the small branches of the portal vein resulted, leading to secondary abscess in the liver.

Case 3. *A Case of Perityphlitis without a Diagnosis.*

Dr. Edward Delafield, Dec. 22, 1875.

Dr. Delafield presented a portion of the colon, to which belonged a long history, yet one of considerable interest, from the variety of diagnoses which had been made, none of which were confirmed by the post-mortem.

The patient was a woman, thirty-nine years of age, who was admitted to Roosevelt Hospital, Oct. 1, 1873. She said she had been perfectly well until two months before that time, when she was suddenly seized with vomiting, which soon passed away, and then she felt well until the next evening, when she vomited again. It again ceased in a few minutes, but recurred the next evening, lasting as before only a few minutes.

A few days after this she began to menstruate, it being her regular period. The discharge, instead of ceasing as usual, continued for three weeks, and during this time she lost a good deal of blood, and also had pain in the lower part of the abdomen in front; not constant or severe, but it ceased with the termination of menstruation.

She continued to feel perfectly well until the first of September, when she was again seized with vomiting, which continued during the day. At the same time she had several slight chills. This condition lasted for a week. The next week the vomiting ceased, she had no more chills, and was able to do her work during the morning; but in the afternoon there was nausea and lassitude. This state continued

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up to five days before she entered the hospital, when she was seized with very great pain, tenderness and swelling of the abdomen. She had been taking laxative medicines and her bowels had moved several times. She would occasionally vomit during the day.

At the time of admission the vomiting had ceased, and the patient complained of severe pain and tenderness in the iliac and epigastric regions, extending backward. There was some redness of the skin, and a slight swelling in the right lumbar region. Her face was flushed, pulse 120, temperature 102° F., and respiration 36.

After her admission her general condition improved. Her vomiting lessened, and her bowels were disposed to be loose. This looseness was controlled, and there was nothing special complained of but occasional vomiting, except that she had night-sweats.

On the 11th of October it was noted that the pain was more severe, and that a hard lump could be felt under the liver on the right side. On deep pressure the pain seemed to be very great, yet when she lay upon the painful side of the abdomen the pain was relieved. On October 18th she had signs of bronchitis—cough, expectoration, and night-sweats. Tenderness on pressure over right side still continued.

On Oct. 28th it was supposed that she was suffering from fæcal impaction, and her bowels were pretty freely moved with purgatives, without any particular effect upon her condition. This was the first diagnosis.

Nov. 20th.—There was a good deal of tenderness over the right kidney, and with the stethoscope there was heard a double murmur, which was limited to the right side of the spinal column, above the tenth rib. It was then supposed that there was an aneurism of the abdominal aorta, and this was the second diagnosis.

Nov. 22d.—The same murmur was heard distinctly again.

Nov. 29th.—Her legs became swollen, particularly the left leg, and she had all the symptoms of thrombosis in the left femoral vein.

Dec. 2d.—She was examined by Dr. Draper, who suspected that there was an abscess in the abdominal cavity, and that the abscess was probably due to the existence of caries of the spine, and this was the third diagnosis.

Dec. 8th.—It was noted that there was a soft tumor on the right side, at the level of the left edge of the kidney and external to it.

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The fluctuation was not very distinct. This swelling she said she noticed for the first time the day before (Dec. 7th).

Dec. 9th.—Tumor has increased in size, and fluctuation is distinct. Urine normal.

Dec. 10th.—Was examined by Dr. Mason, who recognized the existence of pus in the lumbar region, and supposed it to be a post-renal abscess, the result of perinephritis. After this time the woman's general condition became improved.

Dec. 17th.—It was noted that the tumor, when pressed upon from behind, produced gurgling in the abdomen, which could be felt in front, and finally the fluctuation and tumor disappeared. It was then supposed that the abscess had discharged its contents into the bowels.

Dec. 27th.—She complained of pain and tenderness over the ilium, near the anterior superior spinous process, and here somewhat later fluctuation made its appearance, and an abscess opened.

Jan. 7th, 1875.—She was seen by Dr. Sands, who also supposed that she suffered from caries of the spine, that the abscess was the result of this; but he advised that the abscess should not be opened.

Feb. 21st.—She was seen by Dr. Schaffer in consultation, who likewise supposed the abscess secondary to caries of the vertebra, and advised aspiration. Dr. Weir also saw her at the same time, and concurred in the diagnosis and treatment proposed. The abscess was accordingly aspirated, and the swelling disappeared.

March 12th.—The tumor in the lumbar region returned, and opened spontaneously and discharged pus pretty freely. A little later a similar opening over the crest of the ilium discharged pus. These openings were kept open and regularly washed out, when it was found that solutions injected into the opening near Poupart's ligament would flow freely from the one in the lumbar region.

At this time her fæces were examined, and pus having been found in them, it became evident that a communication had been made with the intestine.

Sept. 1st.—She was seen by Dr. Thomson, who made the diagnosis of perihepatitis resulting in abscess, the abscess communicating with the lung and the intestine. This made a further difference of opinion.

After this the patient progressed sometimes better and sometimes

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worse until within the last few months, when the abscess entirely ceased discharging; and at the time of her death the external opening had almost entirely healed up. At the time of her death the symptoms which she complained of were those of phthisis, which had been developed within the last few months.

At the *autopsy* the brain was not examined. The upper lobes of both lungs presented the lesions of chronic disease, and in the apex of the right was a moderate-sized cavity. The heart was the subject of brown atrophy. The liver was somewhat enlarged, and was in a condition of waxy infiltration. The kidneys were slightly increased in size, and had also waxy infiltration. In the peritoneal cavity was a large amount of clear serum, and the peritoneum lining the abdominal wall was somewhat thickened and roughened with little nodules; but there was no fibrine and no adhesions. The stomach was normal. The small intestines were in a condition of chronic catarrhal inflammation, with here and there a small superficial ulcer. The caput coli was firmly adherent behind to the posterior abdominal wall, and in this posterior portion of the gut was an opening capable of admitting the end of the little finger. This aperture led directly into a very small cavity in the tissues beneath, and empty. Leading into this cavity were a number of narrow, flat sinuses, passing from these points beneath the caput coli to the old external openings. These sinuses were small and contracted, and contained no pus. All about them there was a considerable amount of dense cicatricial connective tissue, extending from the point of adhesion of the colon up to the lower end of the right kidney, and partly embracing it. That portion of the capsule of the right kidney was thickened, but the kidney itself presented no lesion, but waxy degeneration.

At the time of death, then, the patient had entirely recovered from the original disease. The cavities had closed, as was virtually the case with the hole in the intestine. The caput coli, by the way, showed no other lesion save the perforation. The case seemed to have been one of perityphlitis, the abscess forming behind the caput coli. Whether originating in an inflammation and perforation of the caput coli, or beginning as a phlegmonous inflammation of the connective tissue beneath the caput coli, neither the history nor the autopsy seemed to show. It seemed curious that the patient, after having been under observation so long, and having been seen by

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so many, a correct diagnosis was not made. Dr. Delafield made no diagnosis at all, and was beyond criticism.

Case 4. *A Case of Perityphlitis.*

By Dr. Erskine Mason.

On February 26, 1876, I saw, in consultation with Dr. Daniel C. Logue, a gentleman 32 years of age, of very delicate constitution, suffering from an attack of perityphlitis, with abscess. I had shortly before, on January 18th, seen him while suffering from an inflamed irreducible hernia of the *left* side, which he had had since early childhood. The history of his present difficulty was as follows: On the 10th of February he ate heartily of mince-pie at a late dinner. Soon after he was taken sick and vomited, and on the following day, while at his business, complained of feeling "very chilly most all the time." The succeeding day, while returning from his office in the afternoon, he was seized with violent pain in the ileo-cæcal region, and with difficulty he reached home. Shortly after, he was seen by Dr. L., who at once placed him under the influence of morphine, and applied several leeches, which afforded relief. Recognizing that there might be some difficulty about the caput coli, or a perforation of the appendix, he was kept quiet, and under the influence of morphine. His pain never radiated over the abdomen, but was confined to the ileo-cæcal region, though for several days the abdomen was very tympanitic. His bowels were moved by warm-water enemata, and he had several large evacuations without pain. At the time I first saw him his bowels were being moved without artificial means and without his knowledge.

My visit was made at 11½ A.M., on the sixteenth day from the time he was first taken sick. His knees were drawn up, tongue dry and red, pulse 100, temperature 102°, skin moist, and for several days previous had had some sweating, and this morning he had vomited. He had not had any chill since he took to his bed, though during my visit he was seized with a chilly sensation.

Examination of the abdomen revealed the following: Upon the

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right side, extending from the iliac fossa, a distinct tumor, dull on percussion, and which could be clearly defined—measuring, in its vertical diameter to Poupart's ligament, five inches; transverse diameter, five inches. No especial pain over greater portion of the tumor; but some at the lower portion, near Poupart's ligament. The rest of the abdomen was free from pain upon pressure, and its walls very supple. The diagnosis was only too evident of ileo-cæcal abscess, with possible perforation of the appendix. I advised immediate operative interference, but for several reasons it was deferred until the following day.

Feb. 27th, at 11½ A.M.—His general condition was more comfortable, and he felt better. Had vomited from the time of my previous visit till seven in the evening, but this morning had taken considerable mutton-broth and enjoyed it; pulse 100, temp. 101°. No pain except over lower portion of the tumor. The tumor had, however, increased, spreading one inch more towards the left side; had also extended upward, and the umbilicus was now somewhat projected. There had been no movement of the bowels since yesterday. It was now decided to act at once; but so strenuously was the patient opposed to taking an anæsthetic, that I operated without it. Previous to opening the abscess I attempted a digital exploration through the rectum; owing, however, to the presence of an inflamed pile, this caused such pain I was obliged to desist.

Benumbing the skin by application of ice, I introduced a No. 3 trocar, attached to an aspirator, into the tumor, at a point half an inch to the left and two inches above the anterior superior spinous process of the ilium. Pus, but chiefly a fluid like bloody serum, issued rapidly into the aspirator, and a pint was evacuated. I then passed a curved bistoury along the side of the trocar, and enlarged the opening for an inch and a half. This incision gave rapid exit to another pint or more of the same purulent fluid, together with large shreds of a brownish material.

The finger introduced through this opening recognized distinctly the caput coli bound down in the fossa, and could readily be swept around in the cavity of this large abscess. No portion of intestines was detected save the caput coli. A tent was now introduced through the wound, and the lower portion of the abdomen covered by a carbolized poultice. There was little odor to the fluid evacuated, and we could not be certain that it was fæculent in character. He bore

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the operation remarkably well, and felt greatly relieved. Half an hour after the operation, when I left him, the abscess was still freely discharging.

Feb. 28th.—Patient very comfortable; had passed a good night. Appetite better than for some days past, pulse 96, temp. 100⅘°. The poultices had been changed every two hours, and the abscess had discharged copiously and was still running freely. A small dose of morphine had been taken every four hours, and was ordered to be continued if required.

March 1st.—Patient has done well since my last visit. Pulse 96, temp. 100°. Is free from all pain, tongue moist, appetite good. Abscess still freely discharging, though the fluid, chiefly of the same character as at first, is more shreddy. Ordered quinine, two grs. three times a day. Otherwise same treatment continued.

March 10th.—General improvement has been steady. Has taken no morphine for past four days. Last night, during a movement of the bowels, which was natural, his hernia increased in size and became painful, rendering him a little nervous. Discharge constant and abundant for the last forty-eight hours; has become much more purulent and thicker; has a strong fæculent odor, several dark masses having been discharged, evidently fæcal. A small mass of dark sloughy tissue was found on the poultice this A.M., but unfortunately was mislaid by him; therefore as to its character we are unable to speak definitely. To the eye and feel, however, it seemed to be a portion of intestine. The abscess was daily washed out with warm carbolized water.

March 29th.—Patient did well till the 25th, when he had a slight rigor and his appetite failed. Has been sitting up in a chair for two or three days. On the afternoon of the 25th was seized with pain on *left* side, in the region of his hernia; but after a few hours this passed off. 27th, had a return of this same pain, and the pulse rose to 102, temp. to 102°. 28th, had a hard chill in the morning, and sweat all the day and evening; great loss of appetite, with much thirst; very drowsy; no pain over abdomen. Discharge for past few days has been very scanty, and has had no fæculent odor since I last saw him. Cavity of abscess will not now hold more than 2 oz. of water; when first washed out it held a pint. This morning found he had passed a comfortable night, had more appetite for his breakfast than for some days. During the night the ab-

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scess again began to discharge freely thick yellow pus, without feculent odor; pulse 96, temp. 101¾°. I introduced a drainage tube, which passed in towards the left side about 4½ inches. The induration of the lower portion of the abdomen, which had always been present, had softened considerably on the right side, while in the median line and towards the left it was still well marked.

May 9th.—Since my last visit he had been slowly gaining in strength; the discharge from the abscesses very slight and thin in character. Has been sitting up for a short time each day, and two weeks ago changed his residence, which necessitated his riding a distance of about three miles, which he bore without any unpleasant circumstances; and so comfortable was his condition that he contemplated going into the country, a distance of several hundred miles, in a few days. On May 7th he complained of some pain in his right side, and on the 8th this had increased, and there was some tympanitis; it also gave him considerable pain while washing out the abscess, so the doctor desisted from using the water as freely as usual.

At 1 P.M. on the 8th he had a hard chill, and another between six and seven in the evening. At 9½ P.M. his pulse was 142, respiration 36, temp. 105¼°. Had been vomiting all the afternoon; abdomen tympanitic and painful upon examination. Was placed at once under morphine and quinine. Passed a restless night, and on the morning of the 9th, between seven and eight o'clock, he had another chill. Discharge from the abscess profuse, serous in character, and strongly feculent in odor. Gas was also escaping from the opening, which was now very small. Stomach very irritable; nausea and vomiting constant. At 12 M., pulse 120, resp. 28, temp. 102½°; complains of great weakness.

I saw him about 2 P.M., and found his condition as above stated. He complained of no pain upon examination of the abdomen, which was very tympanitic; the opening of the abscess was very livid, and emitted a very offensive odor. Our patient was very evidently sinking, I suppose from the giving way of the walls of the abscess, or a new perforation, or both; resulting in general peritonitis. He died May 11th, at 4 P.M., retaining consciousness till a half-hour before his death.

Death occurred ninety-one days from the time he was first taken sick, and seventy-four from the opening of the abscess.

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The following morning we made a partial autopsy. Upon opening the cavity of the peritoneum, air escaped freely. The omentum was bound down over the small intestines by recent adhesions, and greatly discolored, being almost as black as charcoal. Peritonitis was general, and the cavity contained serum, with flakes of lymph and fæcal matter. The wall of the abscess was half an inch in thickness, surrounding and binding down the caput coli and the appendix; it also extended across the median line two inches below the umbilicus. Its cavity contained fæcal matter, but would now not hold more than two and one-third ounces of fluid. It had broken into the cavity of the peritoneum on its posterior border, a little to the left. The caput coli, with the appendix, were so bound down that it would have required more time to have removed them intact than was given to us to make the examination; I am therefore unable to state exactly at what point the perforation in the intestine took place; but it was near the junction of the appendix and caput coli.

Remarks.—There are several features in this case which are to me of striking interest, and some of which I do not recall having seen mentioned in cases that have heretofore been published. If my memory serves me right, there are few if any cases in which an operation has been performed, where it was deferred to so late a day, viz., the seventeenth from the date of the attack. When the presence of a tumor could first have been detected in this case, I am unable to state; the doctor's attention was called to it, it is true, a day or two before I saw the case, and I believe he regarded it as sudden in its manifestation. Be that as it may, it had increased very rapidly.

The tumor certainly was unusually large, and the amount of pus at once discharged exceedingly so. I have no recollection of reading of a case where such a quantity of fluid was discharged, at once and where the discharge, profuse at times, kept up almost constantly for so long a period, viz., seventy-four days. The discharge from these abscesses, I believe, has always been decidedly purulent from the time of opening, and in many cases decidedly feculent in character. Such was not the case, however, in this instance; the discharge, at first and during various intervals, being thin, watery, and resembling blood-serum; though always, it is true, containing pus. It never became what could be called properly feculent

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in odor until several days had elapsed, when fæculent material also issued from the opening.

With all this accumulation in the abscess, there was, and had been up to the time of my first visit, not that amount of constitutional disturbance which one might expect to see. The second day after he was seized, it is true, while at his place of business, he complained of feeling chilly all day. But from that time till my visit he never complained of any such sensation.

As to the mode of death:—When it occurs from perforation of the appendix, I think it will be found to take place on, or before the sixth day in the majority of cases; and where abscess occurs as a result of perforation or perityphlitis, and rupture into the peritoneal sac, causing death, it does so also at a comparatively early date. No case have I seen recorded where, after so long an interval has elapsed from the time the abscess was opened, and where its cavity was diminishing in size, so that it seemed probable it would soon close, has it been known to have given way, causing speedy death.

In case we could suppose that such an accident could be prevented by an external opening, we certainly would have thought that this case would be spared such a catastrophe. Had the opening been too small to allow the ready exit of matter, this perhaps might have been a cause of the result; but such was not the case. It admitted readily the escape of pus, and was freely injected every day.

On the part of some it might be urged that had a freer opening been made, and had it been dressed from the bottom with oakum or lint, as was done in some of the earlier cases, the cavity would have closed sooner, and rupture of the sac would not have occurred.

I am not quite willing to view the case in this light; for the incision was an inch and a half long, and certainly appeared large enough to give ready vent to its contents; while the steady yet gradual contraction of its size certainly did not call for any further interference. Again, from cases that have been reported since Dr. Parker first drew the attention of the profession to this operation, it would seem that the large incision first made was not necessarily required; an opening that admits the free escape of pus being all-sufficient. As to the method of performing this operation, I give preference, in the majority of cases, to the use of the aspirator first. This indicates at once the presence of pus, and if pus is not detected the least injury has been

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done; then the trocar affords a safe guide for the incision by the bistoury. The cause of the fatal termination of this case was, of course, *perforation of the walls of the abscess*, and escape of its contents into the peritoneal cavity, and general peritonitis. With such thick walls (they being a half-inch or more in thickness), and at so late a stage of the operation, one would scarcely imagine they would be liable to give way. My theory of the accident in this case is: the opening of the intestine into the abscess had not yet been closed; a foreign body passed from the intestine, lodged in some recess in the walls of the abscess, and acted as a foreign body, excited irritation and ulcerative action, which resulted in a perforation into the peritoneal cavity; in precisely the same manner as we, unfortunately, frequently find a foreign material or hardened fæcal matter act in the appendix. If this idea is correct, it proves, though it was unsuccessful in this instance, the necessity of resorting, after the first few days, to very careful irrigation of the abscess. This certainly is beneficial in many ways, as we can not only keep the patient more clean, but we can diminish any disagreeable odor the discharge may possess, and lessen the risk of septic infection. Though the attention of the profession, within the past few years, has been forcibly called to the subject of perityphlitic abscess, at least in this city, by the very striking and favorable results which have followed upon operative interference, still there is much for us yet to learn in these cases; and until this operation has been thoroughly popularized, and the great benefit that is likely to accrue from operative interference is more fully comprehended, I think it becomes the duty of those who have to deal with them to give publicity to their cases, whether they are fatal or successful. These abscesses, it is true, have opened of themselves, both externally and into the bladder and intestine, and the patient has recovered. But it is not safe practice to wait, hoping for such a result, in every case. I have, within a comparatively short period, met with two cases where the abscess discharged itself into the bowels and the patients recovered. One was a boy about fourteen years of age, who had been suffering from symptoms of localized peritonitis in the right iliac fossa for several days, where no tumor was detected. One night he had a rather free discharge of pus and blood from the bowel, and his symptoms rapidly abated. The other was that of a gentleman about thirty-seven years of age, in whom a tumor was

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readily detected; but, feeling easier at the time of my visit, an operation was postponed. That night he had a copious discharge of pus from the bowel, and recovered. I have also met with two cases, where, following the usual symptoms which are supposed to indicate perforation of the appendix, or a localized peritonitis in the right iliac fossa from some other cause, small, hard tumors were readily detected; yet under poultices and counter-irritation the symptoms gradually subsided, and the patients recovered. One was in the person of a medical friend, whose case I watched with great solicitude for several weeks; the other, in a lady of middle age. I know similar cases have been met with, and the question to be solved is this: Do these tumors result from a collection of pus, or are they the result of some other inflammatory product? From their diminishing in size, and eventually disappearing under treatment, I believe them often due to plastic effusion alone—the result of a perityphlitis, probably without perforation. When an abscess has already formed, it has at times been with great difficulty detected, owing to the great sensitiveness of the abdominal walls, or to their distention from tympanitis. Another cause which might mislead, is the cæcum becoming gradually distended with fæces. I have never seen this spoken of as a source of error in papers upon this subject, though I have met with it in practice in a case dying of perforation and general peritonitis on the sixth day. Here I thought there was an abscess forming, both from the sense of touch conveyed through the abdominal walls, as well as from there being circumscribed dulness on percussion. When we are able to make it, rectal exploration will often throw great light upon the case, if not entirely clear up the diagnosis.

The first published account of this operation that we have been able to find, is a case related by Mr. Hancock to the Medical Society of London, in 1848, he at that time being its president. The operation was done April 17, 1848, and an account of it published in the London *Medical Gazette* for 1848, page 547. At the meeting in which this case was recited, considerable discussion was called forth; but the operation did not meet the favorable adoption in England that it was entitled to, though the result was successful, for we find no allusion to it by other English surgeons. Nor did the announcement of this case meet with a more favorable reception by surgeons in this country, though it was republished in

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the January number of the American *Journal of the Medical Sciences* for 1849, page 193. Dr. George Lewis, of this city, in the New York *Medical Journal* for 1856, in his elaborate paper on "Abscess and other Diseases consequent upon Lodgment of Foreign Bodies in the Appendix Vermiformis," when alluding to Mr. Hancock's case in detail, also advocated this operation. In spite of all this publicity, and in face of the fact that the large majority of these cases, if left to themselves, perish, it apparently was lost sight of.

It was not till 1867, when Dr. Willard Parker published his paper in the *Medical Record* for March 1, 1867, giving the history of four successful cases, that the operation was at once received by the profession, and became established among the very successful procedures in surgery. His first operation was upon a medical man in 1843, thus antedating all others as far as we are aware of. If he was not the first to publish a detailed account of the operation, the credit certainly belongs to him of forcibly instructing the profession on this subject, and popularizing it. It would seem, then, that we in our Centennial year can claim this operation as one of the greatest advances made in the field of American surgery.

Case 5. By Dr. Howard Wakeman, May 27, 1874.

On April 8th I was called to see Mrs. S——, 65 years old, about five feet in height, extremely emaciated, not weighing over seventy pounds, having a sallow complexion, and a countenance sunken and expressing fatigue and general debility. During twenty years, previous to the three past years in this city, she lived in Alabama. One sister and one of her sons had died of pulmonary tuberculosis. Her previous general health, till about eighteen years ago, was good, when she had a severe attack of dysentery, and has since been troubled with chronic diarrhœa of feculent discharges, nearly always yellow in color, and with chills followed by fever, "supposed to be due to malarial influences while in the South." About a month ago, after walking upstairs, she noticed a pain in the right thigh and side, which she referred to the hip-joint, and described as dull, heavy, and burning. Her chills and fever also increased in frequency. About the third or fourth of April she

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noticed an inability to lift easily her right leg, due to a seeming stiffness of the hip-joint, with an increase of the heavy, burning sensation. On the eighth, she seemed despondent, worried about her illness, and complained of a deal of pain in her hip and groin. Upon rising to walk she placed her hands upon the arms of her chair, and lifted her body with her hands and left leg. In walking she dragged the right foot, perhaps pushing herself a little with it. She could without difficulty move her thigh backward or outward, but could not move it inward or forward. I could not find any disease of hip-joint, nor apparently any affection of the sciatic or crural nerves. The difficulty seemed to be entirely due to a want of power in the muscles which move the thigh inward and forward. Temperature 100½°, pulse 100, respiration normal. Has had increase of diarrhœa recently, and her tongue is dry and red. On the next day she had a chill in the forenoon, followed by fever, with temperature of only 102° and pulse of 120. Upon using the galvanic battery the adductor muscles of the thigh, on the right side, did not respond so well to the induced current as those on the left. The temperature was decreased by quinine given in suppositories, and the condition of her bowels and digestion improved by powders of pepsin, bismuth, and soda. On April 22d I noticed a tumor a little larger than an English walnut, about one and one-half inches below the anterior superior spinous process of the ilium, on the right side, below Poupart's ligament; accompanied by three enlargements of glands on a line below. The tumor was very tender, and, as the patient expressed it, feeling like a boil. Upon pressure it evidently receded through a hardened base like a ring. There was an impulse upon coughing, and by placing the finger back upon the small intestine and pressing upon the tumor, there seemed a continuous movement. The fluctuation was like that of any elastic membrane. The patient kept her right knee raised in bed and was unable to lower it without severe pain, and had tenderness, not diffused over the abdomen. The bowels moved daily without pain; there was no vomiting, but some dulness upon percussion over the transverse colon. On May 2d the walls of the tumor had become thinner. On May 4th the tumor seemed to present the appearance of a reducible hernia. On May 11th a rupture took place through the walls of the tumor large enough to admit an ordinary silver probe; fœcal matter oozed through it, and the patient became en-

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tirely free from pain, and could lower her knee. Temperature 100½°, pulse 100. She expressed herself delighted that the "boil had burst." Gradually the aperture became larger, and a considerable amount of fæcal fluid oozed through. Carbolic compresses and a belladonna plaster were placed over opening; the patient was sustained with quinine, stimulants, and nourishment. On May 20th she became more feeble; the aperture had enlarged, and two other perforations appeared. She also suffered much mentally, and had severe pain constantly about the seat of the tumor. Magendie's solution of morphine was administered in sufficient quantities to make her comfortable. On May 23d, at eight P.M., she became unconscious and remained so till noon of May 24th, when she died, evidently from asthenia. The average maximum temperature from April 8th to May 23d was 102¾°; average minimum temperature was 99½°; respiration, normal.

Autopsy.—A probe in exploring the perforation failed to enter the intestine, but ran obliquely upward upon the iliacus muscle. Upon lifting the superficial fascia and muscles of the abdomen the sinus appeared to run upward beneath the fascia of the iliacus internus. The peritoneum was at all points entirely healthy, and the intestines apparently in their normal position. The transverse colon was found distended with impacted fæces. The cæcum was very firmly attached to the quadratus lumborum muscle, but by careful dissection we succeeded in bringing away the cæcum and about four inches of the intestine. Above and below we found on the inner quarter of the quadratus lumborum that there was sloughing of its fibres and a dark trail extending down the quadratus lumborum to the iliacus internus; and beneath the fascia of the iliacus internus a sinus which communicated with the perforations through the abdominal wall. The cæcum seemed almost obliterated; a hard fibrous tumor appeared to occupy its place. But through the walls of the remaining portion of the cæcum there were two perforations running downward and backward. About four inches of the large and small intestines, from the site of the cæcum, was constricted and hardened, so that the scissors seemed almost to have the feel of cutting tendon in going through it. The entrance from the small intestine was certainly not larger than to allow a small pipe-stem to enter it. The constricted portion seemed entirely free from fæcal matter, and the inner portion of the intestines were con-

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stricted, hard, and roughened. Apparently there was a perforation of the cæcum; and fæcal matter running down upon the quadratus lumborum had entered the fascia of the iliacus internus, and had protruded, as a hernia, a portion of the fascia of the iliacus internus. It is a question whether the perforations were from within outward, or from without inward; and also if the constriction of the intestines and development of the muscular fibres were caused by the inflammatory action developed during the dysentery eighteen years ago, or not.

NOTE ON TYPHLITIS AND PERITYPHLITIS.

Catarrhal inflammations of the cæcum and appendix are not uncommon, and often lead to such debility of the muscular coats of these organs that accumulations of fæces occur in the one, and foreign bodies are apt to enter the other. The mucous membrane of the appendix has glands which secrete a thick mucus, and sometimes a material, like wax, which appears to be as peculiar to it as cerumen is to the ears. The appendix is sometimes found open and rigid, and, when slit up, to contain a semi-translucent matter like wax, arranged in concentric layers. It is sometimes brown, hard, and at others has earthy matter combined with it, until a perfect stony concretion or calculus is formed, which has a disposition to ulcerate its way through. Frequently a fatal attack of peritonitis is found dependent upon such a calculus which has made its way through the appendix. Unlike gall-stones, such cases are more common in young persons, especially of the male sex. Crisp found forty-six cases out of fifty-two in males; in seventeen there were concretions of the above kind; in three, hairs or bristles; in two, bone; in two, a pin; and in others a human tooth, a cherry-stone, the shell of a hard nut, or fig- or raisin-seeds; while in three only was the cause unknown.

Wilks and Moxon state that these appendix-concretions, when hard and brown, so nearly resemble date-stones that they cannot help the suspicion that mistakes have often been made as to their character.

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TABLE OF OPERATIONS IN CASES OF ILEO-CÆCAL ABSCESS FOLLOWING PERFORATION OF THE VERMIFORM APPENDIX. COMPILED BY GURDON BUCK, M.D.

No.	Name of Operator, where recorded.	Date of Operation.	Sex.	Age.	Invasion and Localization of Disease.	Day of Operation.	Mode of Operation.	Nature of Discharge.	Foreign substances discharged on what day.	Result.	Remarks.
1*	Hancock, London Med. Gazette New Series, vol. viii., p. 547.	1843	F	Adult.	Abrupt, with symptoms of acute peritonitis early localized in ileo-cæcal region.	9	Incision over tumor 4″ long.	Fetid, with gas	Two fecal lumps, incrusted with concretion 15 day.	Recovery.	Attacked the day after confinement with fifth child. No fluctuation felt.
2	Prof. W. Parker, M.D., N. Y. Med. Record, March 15th.	1867	M	40	Do. do. do. do.	9	Incision 6″ long, down to fascia transversalis, then exploring-needle inserted.	Fetid.	None.	Recovery.	No fluctuation felt.
3	W. Parker, M.D. Reported by Dr. J. H. Burge, N. Y. Med. Rec., June 15th.	1867	F	15	Do. do. do. do.	14	Incision 3′ long.	Fetid.	None.	Recovery.	No fluctuation felt.
4	L. Weber, M.D., N. Y. Med. Journal, August.	1871	M	22	Do. do. do. do.	7	Incision 9″ long, down to fascia, then left to open spontaneously.	Fetid.	Concretion on 16th day.	Recovery.	No fluctuation felt.—Spontaneous opening, and discharge took place two and a half days after operation.
5	E. Krackowizer, M.D. Communicated.	1872	M	22	Do. do. do. do.	11	Incision down to fascia transv., then divided on director.	Fetid, no stain of bile.	None seen.	Recovery.	No fluctuation felt.
6	Sam B. Ward, M.D. Communicated.	1872	M	17	Do. do. do. do.	early.	Incision as for ligature of ext. iliac art. down to fasc. trans. Left to open spontaneously.	Fetid, no stain of bile.	None seen.	Recovery.	No fluctuation felt.—Spontaneous opening on second day after operation.
7	Prof. H. B. Sands, M.D. N. Y. Med. Journal, August.	1874	M	41	Do. do. do. do.	13	Incision down to fascia, then trocar.	Fetid.	8 or 9 concretions.	Recovery.	No fluctuation felt.
8	C. Kelsey, M.D. Communicated.	1874	F	16	Do. do. do. do.	8	Incision down to fasc., aspirated, then enlarged.	Fetid.	None seen.	Recovery.	No fluctuation felt.
9	J. P. P. White, M.D. Communicated.	1874	M	32	Do. do. do. do. Within two years previous, had two acute attacks, relieved without discharge, but leaving a deep-seated tumor in ileo-cæcal region.	9 Aspirated. 11 Aspirated. 15	Incision 5′ long.	Fetid, no stain of bile.	Concretion like a date-pit.	Recovery.	Fluctuation distinct.—First aspiration on ninth day. Drew off 26 ounces pus. Second aspiration on 11th day. Drew off sixteen ounces. Free opening made on 15th day.
10	Gurdon Buck, M.D. Narrated herein.	1874	M	12	Do. do. do. do.	9	Punctured first with fine trocar, then enlarged by incision with knife.	Fetid, no stain of bile.	1 concretion 1 lump faces, 3 tufts of slough.	Recovery.	No fluctuation felt.

* Dr. Willard Parker performed his first operation prior to this, in 1843.

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7.—PERFORATIONS OF THE BOWEL INTO THE BLADDER.

CASE 1. *Vesico-Intestinal Fistulæ—Adhesion to and opening of the Vermiform Appendix into the Bladder—Passage of Intestinal Worms from the Urethra.*

BY DR. ERNST KRACKOWIZER, March 13, 1867.

The patient was 28 years of age, of medium size and strength, and of healthy parents. Up to his eighth year he had no considerable sickness. When 8 years old, and while on the street, he felt a sensation at the end of his penis as if he desired to pass water. He made an attempt to do so, but without success. On looking down at the penis, he discovered something protruding from the opening of the urethra, which he grasped with his fingers and pulled out. It proved to be a WORM. He says it was still living, but it was not preserved. Before that time he had no inconvenience from the bladder or bowels, except that he never had well-formed solid stools, but always had two evacuations daily, which, although liquid, were of natural color. From that time forward, at intervals of several weeks or months, he experienced a sensation about the penis or perineum of scalding in passing water, and an inclination to frequent micturition. This would last a day or two, and then pass off. At 10 years of age he emigrated to this country, and when on the vessel he experienced the symptoms previously described, and passed another worm from the urethra, which he put in a bottle of alcohol and showed me. It was an ascaris lumbricoides, between five and six inches long. A few days after that he noticed for the first time some gritty substance passing from the urethra, which he supposed to be seeds of whortleberries.

His urine remained clear all the time. He did not have any more inconvenience, except, perhaps, at longer or shorter intervals little unpleasant sensations along the urethra and perineum; in fact, he was well enough four years ago to enlist in the army under Burnside's command, and afterwards under Hooker. He participated in the battle of Fredericksburg, the first battles of the Wilderness, and those of Gettysburg, and, having received a flesh-wound in the leg, was transferred to a hospital in Baltimore. While there he ex-

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perienced some difficulty in passing his water, and voided some substances which appeared to be *the seeds of berries.* He was then discharged from service, more, however, on account of the wound of his leg than his urinary trouble.

He returned to his home in Schenectady, and was well enough a year and a half ago to get married. Soon after this event, however, his urinary trouble increased upon him, and all the rational symptoms of stone in the bladder presented themselves. There was great urinary tenesmus, followed by the voidance of mucus mixed with blood and shreds of coagulated fibrin such as we are wont to see adhere to inflamed mucous membranes. His sufferings then became constant, but did not have much effect upon his constitution; he grew somewhat thinner, but never had any fever, and his appetite was good. He suffered principally at night, in having his rest disturbed by the desire to evacuate his bowels, and also with urinary tenesmus.

When he came here, I first satisfied myself concerning the character of the alvine evacuations. They were mostly derived from the secretions of the bowels, *but they unmistakably contained urine.* While he was here he did not pass any water until the third day, when about half an ounce of perfectly clear urine was voided, at the bottom of which settled a moderate sediment of muco-purulent matter.

On the first night of March I had him anæsthetized, and made a systematic examination of his case. On introducing a steel sound, I at once struck a hard substance, but I was in doubt whether I had a large single stone or several smaller ones to deal with. Immediately on introducing the sound the beak passed over a very rough substance, exciting a grating sensation; and when introduced farther into the bladder it struck a smooth surface of considerable extent. The grating sensation could be perceived by those standing near the table. By making a rotary movement of the sound, it seemed as if the smooth-faced stone slipped from one side of the beak to the other. I suspected that a connection existed between the *smaller* intestine and bladder, as there never had been the least show of any broken-down fæcal matter in the evacuations, which were always liquid; and when they were allowed to stand, a bran-like sediment from epithelium and mucus stained with bile settled at the bottom of the vessel. Moreover, he never passed any flatus per urethram, an occurrence so characteristic where fistula exists be-

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tween the bladder and the large intestines. Two days subsequent to this, I took common writing-ink, diluted, and injected six ounces of it into the bladder. The stop-cock of the catheter being opened, no fluid escaped from its extremity, but about ten minutes after the patient had a stool which showed some of the inky color. In the course of two hours more another stool was colored nearly as dark as the injection itself; in two hours more another stool contained the same color, but not so intense; and four hours after the injection, the evacuation from the bowel had its usual brown appearance. This fact corroborated the opinion which I had previously held, that the fistula *was high up*, probably *between the small intestines and bladder*. This being the case, it was impossible to devise any rational plan of treating the fistula, and the only indication to fulfil was to relieve the patient of the stones in the bladder. While the patient was under chloroform, I could feel a stone behind the prostate, and somewhat overlapping the upper and posterior part of the gland.

The operation was made in the usual manner by the lateral incision. As soon as the prostate was incised, the staff was withdrawn; and when I afterwards introduced my finger, I at once felt as I thought small rough fragments in the wound, which I grasped and removed. In the bladder there were found in all nine stones, five large and four smaller ones.

After the bladder was emptied, my attention was directed to the finding of the vesical entrance to the fistula. I discovered, towards the right and a little above the trigonum, a funnel-shaped recess with a concave prominent upper border, with the lower border slanting off towards the trigonum Lieutaudii. I tried to introduce a probe into this hole, but was unable at first to do so, and fearing I might do damage to the parts by any further attempt, I desisted.

The patient after the operation felt greatly relieved, and went on for the first three days very satisfactorily. The only thing I did not like was his listlessness. He was, however, perfectly rational, and had no fever. During this time all his water passed through the wound. At the end of the third day he had fæcal evacuations, which were nearly liquid.

On the fourth day he had quite a large stercoraceous evacuation from the bowels of almost pultaceous consistency. Its odor and color were normal.

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On the fifth day he seemed even more drowsy. His pulse was quick and feeble, and he had felt chilly several times the preceding night. His skin felt rather cool, his tongue was dryish. Respiration was normal. He complained of sharp pain in the hypogastrium. There was no tympanitis; in fact, the abdominal walls felt very rigid—a condition hardly ever wanting in those who from urinary tenesmus have had the abdominal muscles constantly taxed. The wound in the perineum looked healthy, and the urine dribbled from it as freely as on the day of the operation. He never vomited, and although the pain was bearable under moderate doses of opium, he grew weaker and weaker during the day, and expired March 11th, five and a half days after the operation.

Autopsy.—On opening the abdominal cavity and throwing back the omentum, all the contents of the abdomen, as far as they could be seen, looked perfectly natural; there was no injection of the capillary vessels of the peritoneum, except near the caput coli, and there was no exudation. On pushing back the small intestines, which brought the cæcum, sigmoid flexure, and entrance to the pelvis into view, the manner in which the fistula had been established was at once explained. The vermiform process was seen to dip down straight over the rim into the pelvis, and to be attached to the posterior and lateral aspect of the bladder by old adhesions, which in their turn spread towards the right side of the rectum. Strong bands of old adhesions also passed from the sigmoid flexure towards the parietal peritoneum on the left side, showing that extensive pelvic peritonitis had occurred at some time during his life. By compressing the lower end of the ileum and making pressure upon the caput coli, intestinal gases could be forced into the bladder.

While handling the abdominal organs three or four ounces of good colored, thick and odorless pus or matter oozed up between the bladder and rectum. I could not see the exact spot whence it came, but had no doubt that it proceeded from a retro- or extra-peritoneal abscess that had burst in the peritoneal cavity low down in the pelvis. While handling the parts with a view not to spoil the specimen, and taking out all the pelvic viscera with the perinæum, anus and penis below, also the cæcum with the end of the ileum and a goodly portion of the S. Romanum above, I was very careful to keep the peritoneal lining of the small pelvis intact. I divided the

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peritoneum by a circular incision along the rim of the pelvis, and peeled it off from the surrounding connective tissue. In doing so there were found in the areolar tissue of the cavity of the sacrum three or four small abscesses, none containing more than a thimbleful of creamy, yellow, inodorous pus. The iliac and hypogastric veins, with their branches, contained liquid blood, but there was not the first beginning of a thrombus in any of them.

All the parts, in their connection with the kidneys by the ureters, being spread on a table, the vermiform process was found adherent to the bladder, not by its extremity, but about three-fourteenths of an inch from it.

The bladder, being split open in front by a longitudinal incision, did not show any thickening of its walls. Its mucous membrane was of a bright slate color and only moderately congested. At the neck of bladder was seen a large sinuous ulcer, nearly encircling its whole circumference, deepest on its left side. In this depression probably the four rough small calculi had been lodged; if so, it is accounted for why the beak of the instrument at times encountered some difficulty in entering the bladder at this spot, and an unusually harsh, grating sound was produced.

The posterior angle of the cut in the prostatic portion stopped just short of the anterior ragged border of this ulcer. The wound from the operation was smooth in its whole extent, and left about one-eighth of an inch of the left lobe of the prostate gland undivided. Nowhere in the neighborhood of the wound, or exteriorly to the capsule of the prostate, or in the connective tissue between the fundus of the bladder and the rectum, was there the least trace of infiltration of urine, or sloughing, or an abscess.

One inch above the entrance of the right ureter in the bladder, a smooth-bordered opening was seen, admitting readily the end of a conical elastic bougie, which entered at once into the vermiform process, where it adhered to the body of the bladder. By giving the bougie an upward and outward direction, its end emerged after having trans-coursed the vermiform process, into the cavity of the cæcum.

About one-eighth of an inch below this hole in the bladder there was another smaller, circular opening, which did not communicate with the vermiform process, but ended blind, at the depth of a couple of lines.

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The mucous membrane of the large intestines, from the cæcum down to the anus, had not undergone the least change from the normal.

The kidneys were somewhat large and flaccid. Their capsules peeled off readily, leaving here and there small shreds of the cortical substance adherent to them. The surface of the kidneys was not smooth, but puckered, in consequence of irregular depressions, caused by shrinkage of the cortical substance, from atrophy in different parts. On cutting them open the cortical substance was seen reduced in bulk, forming here and there only a thin layer over the base of the pyramids.

On the surface of the left kidney there was one little abscess, of the size of a small hemp-seed, containing thick yellow pus.

The calices and pelves of both kidneys were dilated, those of the right more than those of the left one. Their mucous lining had a lurid port-wine color, which on closer inspection was seen to be produced by a rich arborescence of the smaller blood-vessels. The pelves held in their cavities a small quantity of turbid, floccular urine.

The peritoneal lining of the pelvic cavity was found in its whole extent fully intact, its surface smooth and glossy. There was nowhere a communication, by ulceration or by an artificial rent, with the subjacent connective tissue.

I have stated above that along the sacrum there were in the extra-peritoneal connective tissue three or four small abscesses. They were filled with as much matter as they could hold, and nowhere else could a cavity be detected of a size to contain the three or four ounces of pus that welled up from the bottom of the pelvis during the progress of the post-mortem examination, even if a communication between the peritoneal sac and its surroundings had existed. But there was no lesion of the peritoneum, and its surface was perfectly normal. The matter therefore had been secreted from the peritoneal surface itself.

Although the patient was rather drowsy after the operation, and the kidneys were evidently the prey of pretty far advanced Bright's disease, yet there were no well-marked symptoms of uræmia. But the symptoms of pelvic peritonitis, coming on rapidly on the fifth day after the operation, were well pronounced.

If I take in connection with them the scattered abscesses in the

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sacral region, and the small abscess in the left kidney, the least improbable explanation seems to me to be that pyæmia commenced on the fifth day, establishing purulent depots in the enumerated localities.

That the peritoneal surface appeared normal, notwithstanding the presence of purulent secretion, may seem surprising; but not more so than in other cases of pyæmia where we see large purulent accumulations in the joints establish themselves in the course of a few hours; and yet the post-mortem fails to detect the least injection, the slightest roughening of the synovial membrane, the smallest shred of fibrinous exudation, or the least erosion of the incrustating cartilage.

Several other interesting questions came up in connection with the case, for solution. In the first place, at what time did the communication between the vermiform process and bladder take place? We have evidences of the existence of quite an extensive peritoneal inflammation, which must have taken place before the last illness. There are small bands extending from the side where the fistula is, to the rectum. Others are seen between the rectum and bladder; and from the sigmoid flexure there were even larger and stouter bands running towards the parietal peritoneum. The patient was very distinct in his statement that he never had any trouble that confined him to bed; that he had never been "laid up" until the time I refer to; and his parents were unable to recollect any severe illness in his infancy. The first thing wrong that was noticed was *the appearance of the worm per urethram.* I do do not think it impossible that, at a time considerably antecedent to the appearance of the worm, he passed through a pelvic peritonitis which fixed the vermiform process on the lateral posterior aspect of the bladder; and that later, a small foreign substance lodging there caused irritation and inflammation, or ulceration, and established a communication with the bladder. It is well known that these local peritoneal inflammations sometimes occur and do no more for the time than agglutinate adjacent parts; and the physician is not unfrequently surprised by the explosion of a fatal peritonitis starting from a subsequent ulceration.

The next question is: the time when this fistulous connection between the vermiform process and the bladder took place? Most certainly it had existed since his eighth year, for then the first

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worm was voided from the bladder. But how is it that he did not suffer from this communication before? I think the true explanation is this: The vermiform process, by its adhesion to the bladder, was pretty tightly stretched. The communication with the bladder was not at its extremity, but about three-fourteenths of an inch from it. The fistulous track in this manner received a perpendicular direction towards the axis of the processus. Moreover, the inosculation between the opening in the vermiform process and the aperture in the bladder was not immediate; but the fistulous canal between the two cavities had an appreciable length. In fact, when a bougie was pushed from the side of the bladder into the vermiform process in a direct line, it was arrested; and it was necessary to give it an outward and upward turn to carry it on easily through the vermiform process into the cæcum.

It will be perceived that all these circumstances co-operated to establish a *valvular* occlusion, which was never overcome by the fluid contents of the bowels; and only accidentally and occasionally by solid bodies, like worms, seeds of berries, etc.

As long as there was no impediment in the bladder by which the voiding of the accumulated urine per urethram was made difficult or impossible, the said valvular arrangement at the fistula opposed itself against regurgitation of the urine from the bladder into the vermiform process.

The occasional intrusions of foreign bodies from the gut into the bladder, at first happily were got rid of by their immediate expulsion per urethram.

But when once stones in the bladder commenced to form (undoubtedly because erratic substances from the bowels furnished the nuclei), this fortunate co-operation for a valvular occlusion was disturbed, and the order of things reversed.

When the voiding of the bladder became difficult, partly by the mechanical occlusion from the stones, and partly by spasmodic contraction at its neck, the urine accumulated in the bladder, and, being under equal pressure from all sides by the action of the detrusores vesicæ, sought and found an outlet, where there was the point of least resistance. And this was where the entrance to the vesico-intestinal fistula was located. In point of fact, the fistula became a vicarious urethra, through which the bladder expelled the urine as it dribbled down from the ureters.

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Thus is explained why, during the last one and a half years after the urinary troubles commenced, never any fluid secretion from the bowels appeared per urethram; and why only small quantities of urine, sometimes only at intervals of three to four days, passed by the act of micturition. It was mainly forced into the bowel, and there produced by its irritation an abundant secretion and a more rapid contraction, with a view to expel the contents of the bowels. He always passed large quantities of fluid from his bowels, and during all the time he was under my observation he never voided less than two chamber-potfuls in a day, and of this probably about two pints was pure urine.

The next question, and the most important, is this: Could he have been relieved if the operation for stone had succeeded? If the complications, viz., Bright's disease, and ulceration of the bladder, which I look upon as the exciting cause of the fatal pyœmia, had not existed, there is no reason why the operation of lithotomy should not have been successful. If it had been so, I do not see why the patient should not have had a quiet time again; just as much as he enjoyed from his eighth to his twenty-sixth year, when stones in the bladder commenced to form.

That any rational plan could have been devised to close the fistula I do not believe.

As objects of surgical interference, cases of intestino-vesical fistula must be divided in two distinct groups:

The *first*, comprising cases in which the fistula exists between the bladder and the rectum, and can be seen and reached, permit surgical treatment.

Of the *second* class, where the fistula exists between the bladder and any section of the intestines down to that part of the rectum which already receives a peritoneal investment, I think it must be said that it is beyond the reach of art. For, first, the exact situation of the fistula must always remain rather a matter of surmise, although statistics indicate the cæcum as that part of the intestine which, by not uncommon lesions, is most frequently the organ implicated.

But even granted that the exact site of the fistula could be diagnosticated, how could it be attacked, except by opening the abdomen, detaching both viscera from each other, and closing each fistulous opening separately with sutures? That such a procedure will

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have the mark of fatality broadly stamped on it, it is unnecessary to dwell upon.

Although vesico-intestinal fistula is one of the rarer lesions, yet there is a goodly number of cases on record.

But cases in which it is made possible for intestinal worms to get into the bladder and be expelled per urethram, are exceedingly scarce. C. Davaine, in his "Traité des Entozoaires et des Maladies Vermineuses," Paris, 1860, has collected only 14 cases.

In two of these, the worms reached the bladder by a vesico-rectal fistula.

In twelve cases either no *post-mortem* examination was made, or the troubles subsided after the passage of the worms.

In three cases the history is quite incomplete.

In one case it is mentioned that death was imminent.

In five cases it is recorded that the trouble diminished, or ceased after the expulsion of the worms. In two of these cases the relief seemed lasting; but if we look at them by the light which our case furnishes, I think we may greatly doubt that the fistulæ had healed radically.

Case 2. The case of Dr. William Kingdon (Med. Surg. Review, July, 1842) bears such a striking similarity to mine, that I think it interesting to restate it here.

A boy of seven years of age suffered from retention of urine for more than eight days, after which, *an ascaris lumbricoides* presented itself at the meatus urinarius, and was pulled out by the child himself. One year afterwards *the same thing occurred*, and the mother extracted a worm from the urethra. Worms presented themselves successively at the opening of the urethra six months later; then in October, 1838, and in January and April, 1839. The passing of several worms per anum, violent pains in the region of the bladder, purulent urine, which afterwards passed with the stools, high and constant fever, transient loss of sight and extreme exhaustion, were the leading symptoms, until death occurred, November 15, 1839.

Autopsy.—The vermiform process, instead of occupying its usual place, dipped down in the small pelvis, and about one inch from its extremity adhered closely to the upper and lateral portion of the bladder, a little above the junction of the ureter with the bladder.

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The bladder itself was small, and contracted around a hard body that was recognized as a stone one and a half inches long and two and three-fourths inches in circumference. The walls of the bladder were very much thickened, and opposed themselves almost entirely to the passage of the urine in the direction of the urethra. The mucous membrane of the bladder was ulcerated in two spots; and in a direct line with the orifice of the ureter, and a little above it, were two fistulous openings, separated by a very narrow spur, which communicated with the interior of the vermiform process. Both ureters were very much enlarged, and both kidneys more voluminous than normal, and were so completely filled with pus, that hardly a trace of healthy tissue remained.

Dr. Kingdon divided the stone with care, and found in its centre a large pin. The stone had not been recognized during life.

The section of the stones so far disappointed my expectations, that their nuclei did not show anything characteristic, which would lead one to conclude that they had immigrated from the intestines. The largest stone contained three nuclei, so that at one time three separate stones must have existed, which by ulterior earthy deposits coalesced into one. The next largest stone had its nucleus quite eccentric and contained a large cavity. Compact and porous layers in irregular alternations characterized each stone. Of the rough stones only the largest admitted of being cut in two. Its structure was exceedingly porous.

The material of all the stones was the same—phosphate of lime, and a liberal admixture of carbonate of lime.

Case 3. By Dr. Robert Watts, Jr.—Dr. Robert Watts, Jr., presented an interesting specimen of communication of the bladder with the intestinal canal, from a woman with phthisis, syphilis, and diarrhœa, which continued until her death. On three occasions she had hemorrhage from the bowels, but never to any great extent. Last November she, by mistake for Magendie's solution of morphine, took a grain of atropine, followed by extreme dizziness, dryness of the fauces, and extreme dilatation of the pupil. Although she recovered from the immediate effects of the poison, she had persistent vomiting, being only at times able to retain lime-water and

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milk, with which she was of necessity constantly fed. Her urine was found to contain albumen and casts, but there was nothing peculiar about her alvine dejections.

Autopsy.—The stomach was perfectly healthy. The liver was fatty, and the lungs tuberculous. Both kidneys were in a state of fatty degeneration.

The cavity of the pelvis gave evidences of old peritonitis, and all the organs were bound together. The rectum was pushed over to the *right* side, and returning on itself again had *formed a large loop*, the two ends of which were bound down closely to the bladder; and from *each end there was a direct communication with the bladder*. The left kidney had two ureters, which ran side by side, and opened at one point by separate orifices in the bladder. The patient had no bladder-trouble, nor symptoms of peritonitis during her stay in the hospital. Her death was occasioned simply by exhaustion.

CASE 4. *Vesico-Intestinal Fistula in a Male—Lumbo-colotomy.*

BY DR. ROBERT WEIR, December 12, 1876.

Dr. Weir presented a specimen of vesico-intestinal fistula, for the relief of which, left lumbo-colotomy had been performed. The patient, aged forty-three years, was an ice-dealer, who had enjoyed good health until June last, when he experienced difficulty in urination. The history which he gave of the trouble suggested the possibility of traumatic origin, as in 1862, while descending a ladder, he straddled one of the rounds, injuring his perineum, and subsequently passed bloody urine. Shortly afterwards a stricture of the urethra was developed, and the operation of external urethrotomy was performed by the late Dr. Krackowizer. He was told that in order to secure the patency of the canal, it was necessary to use an instrument at stated intervals, which he did for a time, and then, as usual, neglected himself. There was a strong suspicion, from the color of the urine, its fæcal odor, and the solid matter discharged, that a fistula existed, communicating with the large intestine; but there was a great deal of difficulty in diagnosticating

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its precise position. Recollecting a case presented by Dr. Krackowizer, in which the existence of such a communication was made out by the injection of ink into the bladder, followed by its reappearance in the rectum, Dr. Weir determined to resort to a similar expedient; but not wishing to employ ink, in consequence of existing irritation in the bladder, he chose milk. Accordingly, two or three pints of milk were injected into the bladder, while a speculum was placed in the rectum. The experiment was unsatisfactory, as the co-operative expulsive efforts of the patient had been suspended by the etherization resorted to.

By the bimanual examination a tumor was, however, discovered in the left iliac region, and was suspected to involve the upper part of the rectum. The following day milk was again injected into the bladder without the use of an anæsthetic, and was expelled per rectum in a very few moments.

The diagnosis being then reasonably clear that the opening was situated in the descending colon or rectum, the operation of left lumbo-colotomy was performed, August 30th, by Bryant's oblique incision.

The man did very well after the operation; his bladder symptoms were markedly relieved, and his intervals of urination lengthened. Fæcal masses would, however, in the last weeks of his life, escape into the bladder during the night-time. He died with symptoms of phthisis, November 14th.

Autopsy.—There were *tuberculous* ulcerations in the small intestines, and some in the large bowel. The small intestines were matted together in the pelvis, and with the thickened adhesions constituted the tumor felt during life. The opening into the bladder, which had an irregular communication with the upper part of the rectum, was capable of admitting the end of the finger.

Case 5. *Recto-vesical Fistula in a Male—Lumbo-colotomy.*

By Dr. Erskine Mason, 1873.

Dr. Erskine Mason exhibited a specimen of recto-vesical fistula occurring in a man. The patient, aged twenty-seven, had enjoyed

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excellent health until April, 1871, when one night he was seized with pain in the bowels, the whole surface of the abdomen became tender, and, according to his account, his bowels were swollen. He was under the care of a homœopathic practitioner, who told him that he was suffering from peritonitis, for which he gave large injections of castile soap and water, together with five cathartic pills "to move the bowels."

This attack of sickness lasted nine weeks, during which time the patient became very much emaciated. He then resumed his occupation as clerk, and continued at it until October, 1871, when he had to cease on account of chills and fever.

In March, 1872, he began to have constant pain over the region of his bladder, attended with diarrhœa, loss of appetite and strength. About this time he came under the care of Dr. Gillette, who very properly diagnosticated ulcerated rectum, and gave the appropriate treatment. Not long after this the patient passed wind through the urethra, and shortly after, fæces.

Dr. Mason saw the patient in March, 1873, and found him in a most deplorable condition, passing more or less fæcal matter through the urethra, and at times unable to void his urine at all. Urine would also pass per rectum. For the relief of pain he had been accustomed to take immense quantities of laudanum. Dr. Mason suggested the propriety of performing lumbar-colotomy, with the view of diminishing the flow of fæcal matter into the bladder, and he was sent to the hospital March 3d. Before he had been in the institution three days his symptoms began to improve wonderfully, his urine commenced to pass clear, and he felt so much encouraged that he left without an operation, less than two weeks after admission. He went to the country, and continued to improve, and on his return, after a fortnight's absence, he was in good condition, and was advised to have the operation performed at once. He had some business which he wished to settle before he should submit, and the consequence was he lost his best opportunity. He was not seen again until May 1st following, when Dr. Mason was sent for. His suffering was then intense; he was writhing in his efforts to pass even a drop of water, the bladder being evidently filled with fæcal matter.

He was sent to Roosevelt Hospital May 9th. There was then but little hope for him; but as the operation was the only means of

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affording even temporary relief from suffering, it was accordingly performed May 12th. He did nicely until the 24th, when he was seized with his old attack of chills and fever. This subsided, however, under the use of quinine, but his condition was too feeble to allow him to rally, and he finally sank, June 3d, just twenty-two days after the operation. From the moment the colon was opened, fæcal matter ceased to enter the bladder.

Autopsy.—The intestines were bound down in the pelvic cavity. There was a large aperture, about the size of the index-finger, opening from the rectum into the bladder. The bladder itself was much thickened, its mucous membrane almost destroyed by ulceration, and the denuded surfaces covered with diphtheritic membrane. There was, besides, an abscess in the prostate. All the other organs of the body were healthy, with the exception of the lungs, the apices of which were seats of secondary deposits.

Dr. Mason, in speaking of the rarity of the case, remarked that his was the twelfth upon which colotomy had been performed for the relief of recto-vesical fistula *in the male;* and his case was the shortest time of survival after the operation. The longest time was three years.

Dr. Noyes asked if there was any choice as to the side upon which the operation should be performed.

Dr. Mason said that, with the exception of one case, the operation had always been done upon the *left* side.

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8.—FOREIGN BODIES ESCAPING THROUGH THE ABDOMINAL WALLS.

By Dr. H. B. Sands, Nov. 11, 1874.

Case 1. *Scissors Swallowed by an Insane Patient and Escaping through the Abdominal Walls.*

Dr. Sands presented a broken scissors which had been swallowed by an insane woman, and which had found its way through the abdominal walls. The following was a history of the case, as furnished by Dr. Farrells, of Nova Scotia, the attending physician:

"I was called, September 15th, by Dr. Fraser, the Assistant Physician of the Nova Scotia Hospital for the Insane, who had charge of the Hospital in the absence of Dr. De Wolfe, the Medical Superintendent, to see Bridget Millar, æt. 51 years, one of the inmates of the hospital.

"The case gave the following history: Her mania has been suicidal since her admission, and she states that she has frequently swallowed various articles to destroy her life, such as needles, thimbles, and other things that she found about the wards; at one time she says she swallowed the stopper of a bath-tub, with a chain attached. Some of these she says she has passed per rectum, and others still remain within her body; she says she passed the stopper and chain soon after she swallowed it.

"A few days before I saw her, she asked Dr. Fraser to examine her side, where she complained of considerable pain, stating at the same time that about two months before she had swallowed a large pair of scissors, after breaking off one of the bows or handles. She was not believed at first, as she was constantly making such statements, without showing any symptoms; her bowels acted well, and she took her food like the rest of the patients.

On examination of the seat of pain, the Doctor discovered a hard, circumscribed, painful swelling, about two and a half inches above the umbilicus, and three-quarters of an inch to the right of the median line. She was ordered to bed, and a poultice applied. The next day a very hard spot was perceptible in the middle of the swelling, and soon a point of ulceration in the abdominal wall, where

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it was evident that a hard, pointed body, which could now be felt, was pushing its way through. The opening in the wall of the abdomen enlarged somewhat by ulceration, until the foreign body could be grasped and lifted out a little, and it was found to be the point of a pair of scissors, closed. Her general condition showed but little effect from the changes going on in the intestines; pulse good, appetite good, bowels acting every day, stools very black.

"On consultation it was decided to let nature continue her efforts to get rid of the foreign body for the present. During the two following days her condition remained the same, the opening enlarged a little and now discharged the contents of the bowel, stained with bile, but without offensive odor. As the opening enlarged, the foreign body could be drawn out about two inches and returned without any ill effect, and it was determined to dilate the opening with sponge-tents. The first sponge-tent acted very well; after the second one, the scissors were slowly and gently withdrawn until the screw between the two blades was reached; this was forcibly broken, and the blade from which the handle had been broken was easily withdrawn. During the process of dilatation she had a chill, followed by considerable fever and constitutional irritation, and it was necessary to stop the treatment for two days. The next day after the part of the scissors was withdrawn, a large needle came through the opening. When the fever subsided, we found that the sponge only dilated the external opening, and the handle of the remaining blade was held at the junction of the intestine and the internal surface of the abdominal wall. Two sea-tangle tents were now used, and passed deep into the intestine; they dilated the internal opening well in about fourteen hours, when with very little force the remaining blade was withdrawn. In twelve hours the aperture had closed considerably, looked healthy; little discharge from intestines. Two days after the operation the opening had healed. The patient is now (October 10th) as well as usual.

"The arms of the patient were held fast by part of a strait-jacket while the foreign body was coming through the abdominal wall."

Dr. Sands was of the opinion that the foreign body had probably made its way through the stomach and the abdominal walls covering it, rather than through any other portion of the intestinal tract.

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CASE 2. *Lumbricoids passed through a Sinus above the Crest of the Right Ilium.*

BY DR. V. P. GIBNEY, Oct. 11, 1876.

The following case, from its triplex nature, seems sufficiently interesting to present with a history and description which possibly may seem long, but which I shall endeavor to condense as far as practicable.

Joseph Moran, two and a half years of age, residing in Brooklyn, was brought by his mother to the out-door department of the Hospital for Ruptured and Crippled, July 19, 1876. I found almost complete palsy of the right lower extremity, voluntary power being present only in the flexors of the toes; an open sinus at the crest of right ilium, about three inches removed from the sacro-iliac junctions, with a thin serous discharge therefrom; two cicatrices immediately to the right of the sacro-iliac junction, at which points, so the mother states, small spiculæ of bone have from time to time been exfoliated. The worm which is presented this evening was brought along, and the mother, with some degree of satisfaction, stated that this had protruded through the sinus only a few days before, and was seized by the child himself, who removed it with ease. During the past six months four other worms have been removed. I learned, while questioning as to the discharge of fæcal matter, that for a day or two subsequent to the passage of a lumbricoid the discharge is yellowish, and a little more fetid than usual. The general health of the little patient was good. The history, as obtained, is that in September, 1874, both lower extremities were suddenly paralyzed, the attack coming on like that of infantile paralysis. In December of the same year a lumbar abscess formed, was subsequently opened, and continued discharging up to the present time. A surgeon saw the case in May, 1875, and probed the sinus. The five intestinal worms have passed, per sinus, since that time. When the first one was passed, considerable hemorrhage occurred. The treatment adopted at the hospital was confined to the paralysis. The child has attended the dispensary regularly since July 19th, and the last note made was on September 26th, when the appetite was reported as enormous, the general health excellent, and the discharge from the sinus slight.

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CASE 3. *Codfish Bone removed from the Peritoneal Cavity.*

BY DR. WM. R. WHITEHEAD, 1867.

A codfish bone was removed from the peritoneal cavity while operating for a strangulated ventral hernia. The tumor was of considerable size, situated nearly in the median line at the junction of the umbilical and hypogastric regions, and rather to the left. After making the necessary incision, relieving the stricture, and passing his finger around to see if there were any other obstructions, he discovered the foreign substance referred to in the right iliac region. It was so closely adherent to the anterior abdominal walls, that it seemed to be fastened by one of its extremities. It was finally removed after considerable difficulty. The tumor was formed by a portion of the omentum. On making the incision into the median line, two or three mesenteric ganglia matted together came into view, which at first caused the operator to think that it might be the fundus of the uterus, or a fibrous tumor connected with the womb. The wound was closed with interrupted sutures, and at the time of reporting the case, thirty-six hours subsequent to the operation, she was doing well.

Dr. W. stated in conclusion that Broca, in his work on strangulated hernia, makes frequent reference to the presence of foreign bodies of a similar character causing inflammation of the hernial sacs. He also in this connection referred to the case reported by Louis Petit, in which a lark's foot had been discovered in the peritoneal cavity while operating for hernia.

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9.—INVAGINATIONS, OR INTUSSUSCEPTIONS OF THE INTESTINES.

Case 1. By Dr. Abraham Jacobi, June 24, 1863.

In a healthy boy æt. two and a half years, who had some summer complaint a year ago, but recovered, except a slight prolapse of the rectum. Four days ago he had diarrhœa and pain, with twenty to twenty-five evacuations of thin mucus, with a little blood; tenesmus; excessive thirst, and pain over the whole abdomen. The passages were without fæcal matter. He vomited a little on the second day. His pulse was rapid; face anxious. The vomiting and thirst increased. A tumor was discovered on the left side, from the sigmoid flexure up to the stomach, with a lateral width of two inches. In the rectum, two inches above the anus, a soft tumor was felt hanging down, surrounded by the walls of the dilated rectum, like a half-inverted uterus.

Diagnosis.—Invagination of a large portion of the intestines, especially of the colon into the rectum. Death occurred from exhaustion.

Autopsy.—The colon descendens formed a hard solid tumor, stuffed with a densely compressed mass. The invaginated portion consisted of part of the ileum and jejunum, the whole ascending and transverse colon, and part of the omentum. Another part of the omentum was attached by old and strong adhesions to the peritoneum and descending colon. It was grayish white, and thick from organized exudations on and within its texture, but so soft as to break easily in handling. There were lacerations of the peritoneal and muscular coats, while the mucous remained intact. Thirst is said by Rilliet to be moderate to the last in this disease, but in this case it was excessive. Vomiting is said to be constant, but in this case it only appeared one day before death. The attack seemed exactly like one of dysentery, and was thought to be so, until the tumor was sought for and discovered. The laceration of the peritoneal and muscular coats was interesting, as it occurred from fatty degeneration.

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Remarks by Dr. Jacobi.—The symptomatology of intestinal invagination in childhood, together with its etiology and treatment, has been admirably given by Gorham (Guy's Hosp. Repts., 1838), Rilliet (*Gazette des hôp.*, 1852), and some of their successors; but there are several symptoms in this case showing that the symptomatology and diagnosis are not always so plain and easy as those writers, and particularly Rilliet, appear to believe. The first symptom alluded to is the thirst, said by Rilliet to be remarkably moderate to the last; but in this case it went on increasing with the duration of the disease until it got to be immoderate. The same fact is reported, and the difference of Rilliet's opinion pointed out, in a case related in the May number of 1858, of the *N. Y. Jour. of Medicine.* The second symptom is the vomiting. It is agreed that fæcal matter is not thrown off from the stomach in children, as it is in the intestinal invagination of adults; but in Rilliet's opinion, vomiting is one of the pathognomonic symptoms. Now, while vomiting in the case in the *Jour of Med.* ceased two days before death, without inflammation or gangrene being present; in this case it was not observed sooner than about twenty-four hours before death. Nevertheless, I feel sure that, as the symptoms were so perfectly like those of dysentery, if a very careful physical examination had not been made, the presence of invagination would undoubtedly not have been discovered. A highly interesting feature is the perforation of the muscular and peritoneal laminæ of the intestine while the mucous membrane remained intact, especially in those places where there was no pressure from invaginated masses. Such was the case in the rectum. The cause must be sought for in the pathological alteration of the broken membranes, and was induced by exudations within its tissue. The same process is observed in the intestinal canal a long time after typhoid fever has taken its course, where sometimes perforation will take place in consequence of fatty metamorphosis of the membranes of the intestine, brought on by local inflammation. It is, however, a remarkable fact in this case, that an extensive inflammation had evidently been present and left large exudations, without giving rise to serious symptoms.

Case 2. By Dr. Abraham Jacobi, 1861.—In a child who had pain, fever, tenesmus, and numerous and bloody stools with-

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out fæcal matter. A small tumor was detected in the rectum two or three inches from the anus, and the diagnosis was changed from dysentery to intussusception.

Autopsy.—The invaginated portion was two inches below the upper end of the rectum, which was very vascular. A localized inflammation is a common cause of intussusception, and the diagnosis is made out by the presence of a tumor, the absence of fæces, and the presence of blood in the stools. When not connected with cerebral disease, a portion of the intestinal mucous membrane becomes inflamed, the calibre of the tube enlarges from loss of contractility of the muscle, and a portion of healthy intestine drops in from above. Vomiting appears later, and ceases sooner in children than in adults. In two other cases, polypus of the intestine had caused invagination. It has been suggested to open the abdomen and reduce the invagination.

Case 3. By Dr. J. Lewis Smith, 1861.—In a babe æt. four months, from taking cold, had pneumonia and severe pains in the bowels for two weeks, and constipation, followed by bloody stools and convulsions.

Case 4. By Dr. Thomas C. Finnell, 1857.—In a man æt. 27, who had had occasional attacks of diarrhœa for four years, the last continuing four days; then vomiting and constipation for three days, followed by rapid sinking and death.

Autopsy.—A large quantity of sero-purulent matter was found in the abdomen, with agglutination of intestines, and perforation at one point, and also at another on the involuted portion of the ileum.

Case 5. By Dr. Gurdon Buck, 1862.—In a perfectly healthy infant, aged four months, who was perfectly well up to the time of the sudden attack. It awoke out of sleep, screaming with severe pain, followed by vomiting and a movement of the bowels, which had previously always been normal; had a very little blood on the diaper. Vomiting recurred every half-hour, of a yellow, brownish, or greenish matter. There was some fever, and slight tympanitis. In twenty-four hours a firm, well-defined tumor was found extending above and below the umbilicus for a space six inches long and

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four inches wide; movable, dull on percussion, situated on both sides of the median line, and not connected with the liver or spleen. It was tender to touch, and convulsions of one and both sides soon set in, succeeded by hiccough, and death in seventy-two hours. There was a patch of viscid, tough, bloody matter on the diaper. There had been no tenesmus or bloody stools.

Autopsy.—Abdomen distended, with bloody serum in it. On the right side a portion of the large bowel, consisting of the cæcum, ascending, and one-half of the transverse colon, was discovered —fleshy, firm, and of a dark grayish livid color; fifteen inches of the ileum was incarcerated in it, and was livid and gangrenous. The vermiform appendix was swollen, and red like a clot of blood. There were no adhesions or exudation of lymph. The ileum was dark purple, with a grayish purple exudation on its mucous surface. Antecedent symptoms are unusual under one year of age; of fifty cases more than one-fourth occurred in infants between 3 and 6 months old. Bloody stools and tenesmus were absent, perhaps because the small bowels were more involved than the large. There probably had not been time for exudations or adhesions to form, but only for fluid effusions in the abdomen to take place.

Cases 6 and 7. By Dr. J. Lewis Smith, 1870.—Dr. Lewis Smith presented two specimens, one of which was a large intestine from an infant, aged 5 months, who died of hemorrhage from a thoracic abscess. At the autopsy there were found several simple intussusceptions in the ileum, and one in the sigmoid flexure of the colon. He did not recollect ever to have met with the lesion in the latter locality unattended with symptoms. For the purpose of explaining the frequency of the occurrence of the accident in that particular place, he called the attention of the members to the loose attachments of the meso-colon, which allowed from a quarter to a third of the gut to descend below the brim of the pelvis. The involution, although perfect, did not produce complete closure of the tube.

Case 8. By Dr. Daniel Ayres, 1853.—Intussusception of the ileum into the cæcum was found in a child, æt. 5 months. There had been copious bloody discharges, but none of fæces. Bilious, and stercoraceous vomiting occurred, and finally death in thirty six hours.

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CASE 9. By DR. ELISHA HARRIS, 1850.—Intussusception of a portion of the ileum was found in a man, æt. 47, who had had previous attacks of peritonitis; followed by obstinate constipation and diarrhœa once a month. Three weeks ago had diarrhœa, with excruciating pain about the navel, not increased by pressure, but followed by vomiting. His urine had to be drawn by the catheter. His death was sudden, in forty-eight hours.

Autopsy.—The peritoneum was deeply injected. The intestines were adherent by recent lymph and old adhesions all over the abdominal cavity. There was an intussusception of the ileum, the sheath of which was gangrenous. The invaginated part had sloughed at its most dependent part, and some extravasation of fluid had followed. There was sloughing of two other parts of the sheath. Intussusception is apt to occur in cases of chronic peritonitis.

CASE 10. By DR. JAMES R. WOOD, 1849.—In a man, æt. 35, who was attacked with sudden pain in the right iliac region, with symptoms of strangulated hernia. Constipation, hiccough, with stercoraceous vomiting soon occurred, and he sank in two days.

Autopsy.—Two feet of the ileum had passed through the ileo-cæcal valve, and there been strangulated.

CASE 11. By DR. JAMES R. WOOD, 1852.—In a girl, aged 9 years. A diagnosis was made before death. All of the ascending colon was invaginated into the descending portion, so that the whole of the colon was on the left side.

CASE 12. By DR. ALONZO CLARK, 1853.—Intussusception of the small bowels was found in a case of chronic arachnitis, with calcification of the arachnoid.

CASE 13. By DR. ALONZO CLARK, 1853.—Four or five intussusceptions were found in the small intestines of an infant, æt. 17 days, who died of softening of the brain. There is a frequent connection between the two disorders.

CASE 14. BY DR. WM. H. VAN BUREN, 1852.

WITH SLOUGHING AND DISCHARGE OF FIVE FEET OF THE ILEUM.

A portion of the ileum, five feet in length, was voided after an attack of intussusception. It was in a semi-putrid condition.

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The patient was a healthy woman, æt. 31, who had had the severe griping and symptoms usual in intussusception. After some weeks the constipation yielded, and copious dejections occurred. Several months after the patient was feeble, but recovering.

Case 15. By Dr. Willard Parker, 1849.—After an attack of intussusception, thirty-six inches of the bowel sloughed away.

Case 16. By Dr. Wm. H. Van Buren, 1857.—There was sloughing of a portion of small intestine seven or eight feet in length.

Case 17. By Dr. John C. Dalton, 1857.—There was sloughing of three and a half inches of the intestine, composed of mucous membrane and submucous areolar tissue, followed by recovery.

Case 18. By Dr. J. K. Merritt, 1870.

H. R., aged 3 years, a robust and well-proportioned boy, excepting his head, which was unusually large, but well balanced. Had always enjoyed good health, but one morning he ate heartily of corned-beef hash, yet appeared perfectly well and playful. At noon he partook of a simple lunch of bread and milk. Soon after, while playing, he began to complain of abdominal pain, which recurred at short intervals, with complete intermissions. During the afternoon nausea occurred, with paroxysms of pain, and finally vomitings, with apparent relief. The matter ejected was undigested food. Soon after he felt languid, with no symptom of ailment excepting a slower pulse, and nausea when rising up from a supine position or drinking a small quantity of water, both of which he was inclined to do. The same evening he had slight fever and some abdominal pain, with irritable stomach; thirst, but no appetite; all other conditions normal. During the night he was feverish, restless, thirsty, and inclined to vomit the small amount of water allowed him. Next morning I found him in a convulsion, which had already existed about fifteen minutes, and in about twenty minutes more he died.

Autopsy.—A careful examination of the organs of the chest and abdomen disclosed every one perfectly healthy, excepting an intussusception in the middle third of the ileum, about three and one-

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quarter inches in extent, which was tightly jammed, and apparently occluded the calibre of the bowel. There was evidently an injection of the vessels of the bowel in this locality, but no lymph or other signs of inflammation. No examination of the cranium was made.

Query: Was the intussusception the primary or proximate cause of death?

Dr. Finnell remarked that it was very frequent to find intussusception in children who had died suddenly in convulsions, and he was inclined to think that in the great majority of instances the lesion occurred during the agony, and was more a result than a cause.

Dr. Loomis thought that the convulsions in this case were due to undigested food, and that in a child of that organization they were not easily controlled when they once commenced; and further, that the intussusception was purely sympathetic and temporary, there being no well-marked signs of inflammation of the gut or neighboring parts.

Dr. Rogers was of the same opinion, and thought that the explanation was well put, inasmuch as a loss of appetite—which this child evidently did not have—was one of the most common and prominent symptoms of organic intussusception.

Case 19. By Dr. Abraham Jacobi, June 24, 1863.—A female child, 4½ months old, was seized, five days before her death, with diarrhœa, tenesmus, and slight passages of blood. Soon after she began to vomit after eating. These symptoms continued; a tumor could be felt in the left inguinal region; energetic means were employed to replace the intestine, but in vain, and the child finally died in a convulsion.

Autopsy.—There were a few ounces of serum in the peritoneal cavity. The invagination commenced about six inches above the anus, and was five inches long. It included the lower part of the ileum and most of the colon. There were only slight evidences of general peritonitis.

Case 20. By Dr. Abraham Jacobi, 1863.—The specimen was taken from a child 5 years of age, who during her whole lifetime had been intensely cyanotic. On the third day before her death

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she became soporose, and had never roused from that condition. About forty-eight hours after this she was seized with diarrhœa, the passages consisting of serum and mucus, mixed with a very small amount of blood, with tenesmus. The child had, during the last twenty hours previous to death, from ten to fifteen passages of the nature described. She vomited a few times during her illness, and died from sheer exhaustion.

Autopsy.—The invaginated portion was found to consist of the lower portion of the small intestine, the ileo-cæcal valve, the ascending, and a portion of the transverse colon. The period during which this invagination continued was about twenty hours, and in consequence of its short duration there were no symptoms of peritoneal inflammation.

The question arose as to the possibility of the invagination being produced during the agony; but, inasmuch as all the symptoms of the accident were present during life, Dr. Jacobi concluded that it was due to other causes.

The cause of the cyanosis was due to the pulmonary artery and absence of one-fifth of the septum of the ventricle.

Case 21. By Dr. J. Lewis Smith, 1871.—Dr. S. exhibited an invagination of the ileum four inches above the ileo-cæcal valve, from a child, aged 4 months, which was not known to be sick until a few hours before its death, when it was seized with convulsive attacks. The distinctly congested appearance of the invaginated portion proved that the lesion must have existed a considerable length of time.

Case 22. By Dr. Edward G. Janeway, 1871.—Dr. J. exhibited a specimen of intussusception occurring in an adult male, in conjunction with scurvy. It was situated fifteen feet from the ileo-cæcal valve, and its occurrence was evidently from above downward. The patient died with pleurisy and effusion, pneumonia, and scurvy. It was evident, from the congested appearance of the invagination, and of the effusion of blood below it, that the accident had occurred at least twenty-four hours before death.

Case 23. By Dr. Francis Delafield, 1870.—Dr. D. presented a portion of the intestine of a camel. The small intestine about

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its middle was the seat of a complete invagination. Between the peritoneal and muscular coats was a deposit of a thick clot of blood, while there were numerous patches of recent lymph on the peritoneal surface.

CASES 24, 25, and 26. By DR. GUSTAVUS A. SABINE, 1849.—Dr. Sabine presented three cases of invagination in which there had been no bloody discharges.

CASE 27. By DR. CHARLES HENSCHEL, 1859.—In a child, æt. 11 months, who had hemorrhages from the bowels. The seat of the intussusception was at the caput coli. The vermiform appendix and ileum were invaginated.

CASE 28. By DR. WM. H. VAN BUREN, 1857.—There was an invagination of the ileum through an aperture in the ileo-colic valve, in a young woman who had had pain in the stomach and vomiting, persisting until death.

Autopsy.—There was an ulcerated tumor in the neck; a large white mass at the hylus of the spleen; and at the extremity of the pancreas small nodules resembling little potatoes. The stomach was thickened throughout, especially towards the pyloric orifice, and presented small ulcerations. The ileum was invaginated, doubled upon itself, and six inches of it had passed *through a rupture in the ileo-cæcal valve;* there was a mass of degenerated tissue on the upper fold of the valve, which held it open. The mesenteric glands were enlarged. The large vessels of the neck were laid bare by the burrowing sinuses of the tumor. The disease ran the course of cancer, and several instances of invagination in connection with cancer had been observed.

CASE 29. By DR. CHAS. E. ISAACS, 1855.—There was a rupture of the ileum, occasioned by a strangulation from invagination, in a child 3 days old, who had had severe pain in the abdomen, with great distention of it, and obstinate constipation. Death occurred in ten hours.

Autopsy.—The cavity of the peritoneum was filled with blood, both fluid and coagulated; the rent was one-quarter of an inch from the place of constriction.

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Case 31. *Intussusception.*

By Dr. J. Lewis Smith.

Dr. Lewis Smith exhibited a portion of the intestine of an infant who died rather suddenly after a trifling illness of thirty hours. No diagnosis was made, the only noticeable symptom being an attack of vomiting.

Autopsy.—All the organs of the body were found healthy, with the exception of a portion of the small intestine fourteen inches above ileo-cæcal valve, which was the seat of an intussusception. The incarcerated portion was three inches in length, and presented a deep red appearance, evidently the result of intense congestion. It was evident that the intussusception existed some hours before death, and was interesting, as occurring in so young an infant.

Case 32. *Intussusception.*

By Dr. J. Lewis Smith, Dec. 10, 1873.

The specimen showed an intussusception in the ileum, about one foot above the ileo-cæcal valve, in a child 13 months old. On the day before its death, its previous health having been good, it seemed ill, and vomited once or twice, but did not appear to be in pain. It had two evacuations from the bowels, of the usual appearance, in the latter part of the day. On the following morning it went unexpectedly into collapse, and died in about twenty-four hours from the commencement of its sickness.

Autopsy.—All the organs of the trunk were found normal, except the intussusception. The mass involved in the displacement measured two and a half inches in length, and was slightly crescentic. The mucous membrane immediately above and below it had the normal color and appearance, as did that of the external or non-incarcerating portion of the mass, while the incarcerated portion was deeply injected. Water poured into the intestine above the invagination was wholly arrested by it.

It was evident from the size of the intussusception, and the

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strangulation of the vessels in its interior, that it must have occurred some time before death; probably the day previous, at the time of the vomiting, and that it could not have been induced by the vermicular and peristaltic movements. It was apparently the cause of the collapse and death. This case, with others which he has reported, are interesting as showing that that form of intussusception which Rilliet and Barthez designated intussusception with symptoms, in contradistinction to the simple form, which occurs without symptoms, may take place in the small intestines of young infants, contrary to the opinion of those observers. In nearly all instances fatal intussusception in infants occurs in the large intestines, but the cases which are here reported establish the fact of an occasional exception. In a recent valuable paper on intussusception, Dr. Jonathan Hutchinson alludes to death by collapse as one of the modes of termination in cases of this displacement.

Case 33. *Intussusception from Congenital Defect.*

By Dr. John W. Warner, Oct. 10, 1872.

Dr. John W. Warner presented a specimen of intussusception from a child aged 19 months. The little one was taken suddenly ill with cramps in the bowels on Saturday morning (September 21st), which continued during the whole of that day. In the evening Dr. Warner was sent for. There was then extreme suffering on the part of the patient, and this pain, together with the tenesmus, evacuation of blood, and vomiting, were the principal symptoms. All of these continued unabated until death, which occurred at the end of forty-three hours after the attack.

The interesting features of this case were: 1. The extent of the invagination comprising *that portion of the colon extending from the ileo-cæcal valve to the sigmoid flexure;* 2. The fact that another child of the same family had died at the same age, two years before, with the same difficulty; death in the latter case resulting at the end of four days.

Dr. Jacobi believed that the fact that two cases had occurred in

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the same family would give rise to the suspicion that there was an anatomical cause for the accident peculiar to that particular offspring. This anatomical peculiarity, he thought, was excessive length of the colon, and an unusually loose attachment to the iliac fossa. He suggested the probability that other children of the same parents might die in the same way, but thought that the application of a broad, snug bandage worn during infancy might act as a preventive.

Dr. J. Lewis Smith stated that in the large proportion of cases of this sort there was a prolapsus of the ileum through the ileo-cæcal valve. He believed that the specimen presented was such an one.

Dr. Frederick A. Castle mentioned a case, observed in the foundling hospital in 1866, in which an infant, who had been affected with diarrhœa for several days, suffered a prolapse of the ileum and jejunum through the large intestine; nearly eight feet of the small intestine protruding beyond the anus.

CASE 34. *With Extensive Sloughing of the Bowels.*

BY DR. E. R. PEASLEE, February 22, 1865.

A girl, æt. 17, in May, 1863, had an attack of colic, lasting five hours, and followed by the appearance of her menses. In June and July she had similar seizures. In January, 1864, another attack occurred, attended with griping and vomiting. There were several other paroxysms until May, 1864, when she had an attack of colic, accompanied by vomiting, which did not commence with the menstrual period, but eight days after it had ceased. For five days she had a daily hemorrhage from the bowels, but no alvine evacuation. She also vomited many times each day. Then large enemata were repeated thrice daily for two days (another hemorrhage having occurred meanwhile), when a large amount of *well-formed fæces* passed with a little blood, and she became better again, and so continued for ten days. Eighteen days after the beginning of the last attack, after she had taken an enema and had the bowels relieved one morning as usual, she still felt the presence of something unusual in the rectum, which at last protruded.

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Her mother found, by pinching the protruding mass, that it was not sensitive, cut it off with a shears, and removed it. It resembled nearly five feet of small intestine, with the mesentery (two inches wide) attached. The patient felt relieved after its removal, and the next day passed about a foot more. Seven days after another attack of vomiting occurred; and from this time till her death, over four months afterwards, she would have pretty comfortable intervals of from one to ten days, and then vomit from one to four days in succession, having some griping and flatulence *all* the time. She usually vomited three hours after eating, and the vomitus consisted to the end of life of (1) food, (2) bilious matter, (3) greenish substance, presenting a fæcal odor.

After the attack in May, and the hemorrhage, the bowels were never moved, except by the enemata as above specified; the discharge coming away in fifteen or twenty minutes, and always having a natural color; except on two occasions they were for eight or nine days of a slate color, and then again more tinged with bile than usual. During the first eight or ten weeks the passages were well formed; then they became more fluid, and during the last three weeks of life there was diarrhœa, of two or three, and finally six to eight discharges a day. She gradually became emaciated to the last degree, and died in September, 1864, in one hour after being suddenly seized with coma.

What was the character of the masses expelled in May? When shown to me in August (the patient still living), I did not hesitate to pronounce them—*not* tubular exudations from the alimentary canal—but portions of *small intestine*. The question was left to be decided, if possible, by the *post-mortem* appearances, of which Dr. Volk gives the following particulars, so far as the alimentary canal is concerned:

1st. The *small intestine* was only sixteen feet long. The duodenum and the upper five feet of the jejunum were very much hypertrophied, and at the lowest point much dilated. At the middle point of this hypertrophied portion (or three feet below the stomach) *was a polypus* as large as a pigeon's egg; and next below the dilatation was a stricture half an inch in length, and only large enough to admit a small goose-quill. The remaining ten feet of small intestine presented nothing abnormal, except a slight degree of atrophy.

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2d. The *large intestine*, five feet ten inches long, was extremely atrophied, being half to three-quarters of an inch only in diameter.

3d. The *mesentery* was smooth and apparently intact; it was, however, hyperæmic, and its glands were hypertrophied.

The case must be regarded as one of intussusception, and it must be admitted that the patient lived over four months after losing nearly six feet of her small intestine; that the turns of vomiting, previous to the severe one in May, were excited by the presence of the polypus, and that during that attack the intussusception took place *from below upward;* that the hemorrhage depended on the strangulation and sloughing of the portions expelled; that the subsequent recurring attacks of vomiting and the atrophy of the large intestine were due to the stricture preventing the passage of food in any considerable quantity; though enough passed to produce some natural fæces, till, the stricture gradually becoming smaller, only fluid (diarrhœa) passed per rectum, at last.

Dr. Shrady, who had made a microscopic examination of a portion of the specimen, stated that there were appearances under the microscope which would lead him to suppose that the membrane was intestine, although there were no involuntary muscular fibres present; nothing, in fact, but an abundance of white fibrous and connective tissue.

Dr. Conant remarked, notwithstanding the microscope had failed to detect smooth muscular fibre, he believed that the specimen was really intestine. He could not see how a sheet of false membrane could be discharged of that length and symmetry of shape, and also have a membrane attached to it, in precisely the situation and relation which would be assumed by the mesentery. Again, the small intestine was found on post-mortem examination to measure only sixteen feet.

Dr. Krackowizer could not believe that it was intestine, for the following reasons: In the first place, the walls of the mass were very thin, which would not be the case if it were an intussusception; as in the latter instance the parietes of the incarcerated portions would be very much thickened. Secondly, there should be a double tube to be seen, which, of necessity, must present a mucous membrane, both externally and internally, while there would be a reduplication of the peritoneal lining within. He could, however, conceive of a condition of things which would render the supposi-

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tion of the membrane being nothing more than a croupous exudation very possible.

An exudation might take place from the mucous membrane of the intestinal canal, and occupy at first its entire internal circumference; this in time might separate itself, except at one particular point, where a fresh deposit of the exudation could take place in such a manner as to allow of the formation of an extra sheet of membrane outside of this tube of exudation, but still within the intestinal canal. Finally, this latter attachment might be separated, and the whole pass per rectum.

Dr. Conant could not conceive of the possibility of the formation of a croupous membrane in the ingenious manner suggested by Dr. Krackowizer. Then, again, another fact which bore stubbornly against Dr. Krackowizer's theory was *the extreme shortness of the intestinal canal* as found at the post-mortem examination.

Dr. Krackowizer contended that if an intussusception had sloughed off and been discharged, it would, besides presenting two mucous surfaces, be smallest at its lower end, and appear like an inverted cone; the extremity of which would be more or less curled, owing to the traction which would necessarily be exerted upon it by the mesentery. This latter membrane, too, being engaged between the opposing surfaces of the peritoneum, would eventually become adherent to it, and give the invaginated portion that increased thickness which is common in such cases. Again, there was no appearance of peritoneal surface on any part of the specimen.

Dr. Peaslee said that the explanation offered by Dr. Krackowizer was exceedingly ingenious, and thought the occurrence of such phenomena by no means an impossibility; still, it was an extreme improbability. He agreed with Dr. Conant in the belief that the specimen was one of intestine, and, as such, he considered it as belonging to one of the most remarkable cases of the sort on record. It was owing, in his opinion, to its extreme length that any serious questions were raised against its being what it really, in his eyes, seemed to be; in other words, if it had only been four inches long, the fact of its being intestinal canal would not appear so improbable. The specimen had been for a long time immersed in alcohol, and had doubtless lost many of its essential microscopic characteristics; and of course, under the circumstances, the microscope could only decide what could now be seen, while the results of

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the examinations made did not disprove the fact that at one time non-striated fibre did exist.

The specimen, too, presented all the gross appearances of portions of the intestinal canal, which he had had for many years immersed in alcohol, and which had been used by him for purposes of anatomical illustration in his lectures. As to the want of a double fold in the invaginated portion, he did not think that fact so difficult of explanation, as it was not known in what manner the membrane was extended, nor whether it had not been disturbed after its removal.

Dr. Voss believed that the case was one of invagination, because of the presence of the *polypus* of the intestine. In case it was assumed that the theory of Dr. Krackowizer was the correct one, it was impossible to conceive of the existence of such a fortunate set of circumstances, whereby not only the tube should be so perfectly formed, but that the extra sheet of membrane should be so accommodating as to arrange itself in a given straight line on the circumference; which line should also have the precise direction of the long axis of the canal.

Dr. Speir was of the opinion that if the specimen was one simply of croupous exudation, the fibres composing it would be more or less granular.

A committee on Dr. Peaslee's case, consisting of Drs. Krackowizer, Conant, Shrady, and Peaslee, reported in a verbal communication from the chairman, Dr. Krackowizer.

On looking at the specimen in a fair light there was an instant coincidence of opinion that the specimen presented *was intestine which had sloughed away;* that, according to what was known of the history of this case, a portion of intestine had first become invaginated, then gangrenous; finally it sloughed, and was expelled. The specimen showed unmistakably the ramifications of the arteries of the mesentery, and also the existence of a peritoneal covering. The same was the case with the remaining intestine, and at different spots the peritoneal covering had been torn up to show the muscular layer underneath. When turned inside out, the specimen showed also a mucous membrane studded at several points with ecchymotic effusions. In fact, there did not remain the least doubt in the minds of the committee that the specimen was part of the intestine of the patient.

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Under the microscope no evidences that the specimen was a croupous exudation were found. Wherever a microscopic specimen was taken from it the fibres of connective tissue were well preserved. In one specimen a capillary vessel could be distinctly seen. *No unstriated muscular fibre was found*, yet the committee did not use the proper reagents to bring these fibres into view, as it is almost invariably necessary to do to bring the nuclei of these bodies into good relief. No epithelium was found. All the tissues seem to have been destroyed, save the connective, and the appearance of these fibres corroborated the opinion, previously formed by the naked eye, that this was an organic structure. The shortness of the intestine, too, added to the portion which had sloughed off, gave the usual length of the canal.

It was unfortunate, when the intestine was taken out, that the mesentery was not preserved; yet, from the small portion left at the seat of the stricture, it becomes plain that at that spot the mesentery was crowded in a thick fold into the intussusception; because the little piece of mesentery that was attached was more clumsy and massive than usual. In its middle there was a cylindrical mass, which felt like the vas deferens, and it undoubtedly contained a large branch of the superior mesenteric artery; for right below this, the lumen of a very much dilated branch of this artery could be discerned.

There are two modes of explaining the manner in which this discharge of intestine might have occurred.

One mode of explanation has been given by Dr. Conant, and is this: The process of sloughing did not take place simultaneously in the whole of the tube; but ulceration first severed the returning piece of the invagination, so that it dropped over the inner layer, and became unravelled within the intestinal canal.

Another explanation may be this—that the invaginated mass protruded per anum, with the upper end of the inner tube presenting, and that the mother, in attempting to withdraw the mass, took hold of this inner tube and unravelled it *in situ*.

Either mode of explanation is admissible, and I will not say which one is the most probable.

The mucous membrane of the intestine below the stricture has been torn longitudinally, most probably at the autopsy. It seems,

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from the condition of the strictures, that the upper portion was invaginated into the lower one.

Under the microscope could be seen part of a Peyerian patch, with a number of the openings of the follicles presenting at regular distances.

In conclusion, Dr. Krackowizer remarked, that the very same day on which the committee met, he saw in a German journal a case of intussusception, with a woodcut of a portion of intestine which had been discharged per anum, but which measured, however, only fifteen inches in length. This patient, after the discharge, had one or two attacks of intestinal obstruction, from which he was relieved; so that, at the time of reporting the case, the patient was doing well. In this instance the cause was *a simple pediculated tumor on the peritoneal surface of the intestine*. In Dr. Peaslee's case the same kind of tumor existed, but on the mucous membrane, and it was somewhat remarkable that this mass was situated two and a half feet from the stricture.

Case 35. *Recovery after Operation.*

By Dr. H. B. Sands.

At six P.M. on Sunday, March 11, 1877, I was called to see Mary L., an infant six months old, who, while nursing twelve hours previously, had been suddenly attacked with tenesmus and abdominal pain. Soon afterwards vomiting set in, and continued during the day whenever the child was nursed or fed. Meanwhile, the straining action became more violent, and was attended with an escape of bloody mucus from the rectum. No feculent matter was contained in these evacuations, eight of which had occurred since they were first discovered at one o'clock. During the afternoon all the symptoms became aggravated, and the child seemed exceedingly ill. On my arrival I found the patient in great pain, and in a condition approaching collapse. The pulse was extremely weak and rapid, muscular debility marked, and tenesmus severe and frequent. From the history of the case, I at once suspected that the symptoms were due to intussusception, the presence of which I was able to confirm by manual examination. On flexing the thighs and relaxing the abdominal muscles, an elongated tumor could be felt,

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extending in a straight line from the left iliac region to the left hypochondrium. The upper part of this tumor was movable, and could be pushed a little beyond the median line. It was tolerably firm and inelastic, tender on pressure, and dull on percussion. The abdomen was not tympanitic, and the detection of the tumor was quite easy. On inserting the finger into the rectum, the invaginated intestine was at once discovered reaching down nearly to the anus, and forming a mass that filled the rectum completely. The lower orifice of the intussuscepted gut could be distinguished as a depression, situated somewhat laterally; and the finger, as high as it could reach, passed freely between the mucous membrane of the rectum and the invagination. Furthermore, by conjoined manipulation, with the finger of one hand in the rectum and with the other hand upon the abdomen, the continuity of the rectal and the abdominal tumor could be distinctly appreciated.

Having satisfied my mind regarding the diagnosis, I lost no time in endeavoring to replace the invaginated intestine, and succeeded, as I thought, in effecting partial reduction by simply pushing the rectal tumor upward with the finger. But the abdominal swelling was not materially altered by this manœuvre, and the intussusception soon reappeared in the rectum. I then tried to inflate the intestine; but, as the apparatus employed for this purpose was imperfect, and adequate assistance was wanting, I soon abandoned this method, and resorted to the injection of warm water. By compressing the nates, I succeeded in throwing up a considerable quantity of fluid, which caused the rectal tumor to disappear, and the abdominal one to become smaller. As these several manipulations had occasioned much pain, and as the child seemed quite feeble, I desisted from further attempt at reduction until ten o'clock in the evening, when, accompanied by Dr. J. G. Curtis, I returned to the patient, whom I found in the same condition as at the time of my first visit. The rectal tumor had again descended close to the anus, the abdominal swelling was plainly distinguishable, and the signs of obstruction were marked. In the interval between the first and second visits, the muco-sanguinolent evacuations had continued, and the child had grown weaker. With Dr. Curtis's assistance, I inserted a flexible tube about six inches up the rectum, and practised inflation with the mouth. By this means I effected partial disinvagination; but, as the procedure occasioned great pain,

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and afforded only imperfect relief, I repeated it but two or three times before resorting to warm-water enemata. This time the water was injected through the long, flexible tube, inserted as above mentioned, and the distention thereby produced was evidently considerable, as was shown by the child's suffering, and by the force with which the fluid was expelled when the pressure was taken off the nates, and the tube withdrawn from the rectum. While the enemata were being administered, the child was held at times in the inverted position, and the abdomen was gently kneaded. Having pursued the treatment thus described as long as was deemed prudent, I noted the following results. The abdominal tumor had so far disappeared that it could no longer be discovered by palpation, nor could the invaginated gut now be found in the rectum. Nevertheless, by conjoined manipulation, I felt assured that a certain portion of intestine was yet unreduced, for I could distinctly make out the presence of a small but firm and movable swelling at the level of the umbilicus. Convinced that the case ought neither to be left to nature nor treated by medicine, and having obtained the consent of the parents to act according to my own judgment, I proceeded without delay to perform the operation of abdominal section, or laparotomy. Ether having been administered by Dr. Curtis, I opened the abdomen by an incision about two inches in length, extending downward from a point just below the umbilicus. By introducing two fingers through the wound, I was able to make the necessary exploration, and at the same time to prevent the escape of the small intestine. After a little delay, a tumor was discovered in the right iliac fossa, which afterwards proved to be the intussuscepted mass. Finding it impossible to examine this satisfactorily without withdrawing it from the abdomen, I did so, after having necessarily permitted the escape of a large proportion of the small intestine. It was then apparent that the intussusception was of that variety which Brinton has called ileo-cæcal, and that the invagination had been greatly reduced in size by the methods of inflation and injection. What remained, and constituted the mass exposed by dissection, was an intussusception of the cæcum and terminal portion of the ileum into the commencement of the ascending colon. The mass was about an inch and a half in length, and the inversion and swelling of the cæcum appeared to have produced complete obstruction of the ileo-cæcal valve. Although the intus-

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suscepted part was short, I found considerable difficulty in extricating it, on account of the rigidity and swelling of the intestinal coats, which were dark-colored and ecchymotic. Disinvagination was effected mainly by pulling the outer or ensheathing layer of the intestine downward, and by squeezing the lower end of the intussuscepted gut. Some force had to be employed at this stage of the operation, and it was feared that the intestine might be ruptured in the attempt to reduce it; but, with caution and perseverance, the parts were gradually unfolded, until finally the vermiform appendix was extruded, and the normal relations were fully re-established. The ileo-cæcal valve, as felt through the intestinal walls, appeared somewhat thickened, and at first was thought to be the seat of a polypoid growth; but this impression was probably erroneous. There were no adhesions or signs of general peritonitis, and the thickening and ecchymosis of the intestinal walls were limited to the intussuscepted parts. The mass of large and small intestine that now lay outside the abdomen was gradually returned, and the wound closed with five silver sutures, embracing the peritoneum. Additional support was afforded by the use of adhesive plaster and a flannel bandage. The replacement of the small intestine was a difficult step in the operation, but was accomplished without resorting to undue violence.

The subsequent progress of the case was highly satisfactory. Pain, vomiting, tenesmus, and the discharge of bloody mucus, ceased immediately after the operation, and did not recur. During the first twenty-four hours there was slight nausea, probably due to ether. The bowels moved naturally on the second day. The shock following the operation was not severe, but the infant was too weak to nurse before the fourth day. Meanwhile, it fed regularly, and took occasionally a drop of laudanum, or a little brandy-and-water. Beyond this, no medicine was given. On the fifth day, two of the silver sutures were removed; but, as the wound was not firmly united, the rest were allowed to remain, and were not all removed until the fourteenth day. At the first dressing the child struggled violently, and some gaping took place of the central portion of the wound. This occurrence, it was feared, would prove unfortunate; but no harm resulted, and recovery took place without the slightest symptoms of peritonitis. At the present date the child is in excellent health, and the cicatrix is quite firm.

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Table of Operations for Intussusceptions.

COMPILED BY DR. HENRY B. SANDS.

No.	Reference to Operator.	Age and Sex.	Condition, Symptoms, and Treatment before Operation.	Duration of Disease before Operation.	Result.	Remarks.
1	Velse, in Haller's Disputat. Anatom., 1751.	50 yrs., F.	Considerably reduced; had been treated unsuccessfully by enemata, cups, and fomentations.	Not stat'd.	Recovered.	Oblique incision on left side, four fingers' breadth from umbilicus: reduction easy; no adhesions.
2	Ohle: Rust's Magazine, Berlin, 1817.	50 yrs., M.	Intestine protruded beyond anus, and was cut into under the impression that it might be hemorrhoidal. Bougies and enemata used without effect. Pain, vomiting, and tenesmus, well marked.	11 days.	Died about 12 hours after operation.	Oblique incision, five and a half inches long. Much force required in reducing colon, which was adherent for nearly twelve inches. *Post-mortem* showed general peritonitis with gangrene of the invaginated gut.
3	Fuchsius; Hufeland's Journal, 1825.	28 yrs., M.	Movable swelling near umbilicus, pain, vomiting, and constipation. Treatment: venesection, anodynes, cathartics, and administration of six-ounce doses of metallic mercury.	10 days.	Recovered.	Incision eight inches in length along outer border of right rectus muscle. Unable to reach upper end of intussusception, the operator opened the bowel at lower end, and pushed back the invaginated part, which measured over two feet in length.
4	Gerson, 1828, Am. Jl. Med. Sc., 1874.	12 w'ks, M.	Intestinal obstruction and hemorrhage: tumor felt in inguinal region, and on examination *per rectum*.	Not stat'd.	Died in a few hours.	Oblique incision in left inguinal region parallel with Poupart's ligament; adhesions firm, and invagination extensive and irreducible. At a gangrenous point intestine was ruptured, causing operation to be abandoned.
5	Wilson, Am. Journ. Med. Sc., 1826.	20 yrs., M.	Stercoraceous vomiting and intestinal obstruction. Purgatives and metallic mercury were administered without effect.	17 days.	Recovered.	Incision five inches in length through linea alba. Invagination found in ileum, which was livid, and so firmly adherent that considerable force was required to reduce it.
6	Hanff, Heidelberg Med. Annal., 1843.	36 yrs., M.	Pain, vomiting, intestinal obstruction, protrusion from anus of gangrenous bowel and abdominal tumor. At time of operation, patient was prostrated with acute peritonitis.	4 or 5 days.	Died 9 days after operation.	Oblique incision on left side, above Poupart's ligament; adhesions firm; intestine ruptured, and operation abandoned. General peritonitis existed at time of operation.

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No.	Reference to Operator.	Age and Sex.	Condition, Symptoms, and Treatment before Operation.	Duration of Disease before Operation.	Result.	Remarks.
7	Pirogoff, St. Petersburg, 1852.	16 yrs., M.	Symptoms of obstruction.	Considerable duration.	Died soon after operation.	The invaginated bowel being found gangrenous, the intestine was opened, and an artificial anus established.
8	Wells, Trans. Path. Soc., London, 1863.	4 mos.	Invaginated bowel felt in rectum. Injections, inflation, and sponge-probang failed to afford relief. Child nearly moribund when operation was begun.	4 days.	Died 5 hours after operation.	Incision in median line below umbilicus. Intestine released with difficulty, and punctured to relieve distention.
9	Laroyenne, Server: de l'Occlusion Intestinale, 1870.	Not mentl'n'd.	Not mentioned.	Not mentl'n'd.	Died.	Disinvagination could not be effected, owing to adhesions.
10	A. Johnstone, Brit. Med. Jl., Dec. 6, 1873, and Lancet, Feb. 11, 1873, p. 738.	Infant.	Symptoms were those of acute obstruction.	Not mentl'n'd.	Died in a short time from inflammation.	No difficulty was encountered in withdrawing the bowel.
11	Weinlicher, Schmidt's Jahrbücher, 1872.	6 mos., F.	Acute obstruction; vomiting, pain, discharge of bloody mucus, and tumor in left hypogastrium. Exploration of the rectum afforded no information.	3 days.	Died 6 hours after operation.	Incision three inches long at outer border of left rectus muscle; much difficulty in effecting disinvagination. Autopsy showed acute peritonitis.
12	Hutchinson, Med. Chir. Trans., vol. lvii., 1874.	2 yrs., F.	Vomiting, pain, occasional discharge of bloody mucus, and prolapse of the bowel through the anus. Abdominal tumor felt on left side. Symptoms not acute, and "no real obstruction of the bowels." Enemata tried without effect.	1 m'th.	Recovered.	Incision in median line below umbilicus. Reduction easy; no adhesions.
13	Duncan, Edin. Med. Journal, June, 1874.	5 mos.	Diarrhœa, griping, and discharge of bloody mucus. Abdominal tumor; intestine felt *per rectum*. Inflation and injection unsuccessful.	Not stat'd.	Died 24 hours after operation.	Median incision. Invagination extensive, and released by a combined process of taxis and traction; patient rallied well, and death occurred suddenly, apparently from syncope.
14	Marsh, Med. Chir. Trans. 1876.	7 mos., M.	Acute symptoms set in twelve hours before operation. Cæcum protruded from anus. Insufflation and injections tried without effect.	14 days.	Recovered.	Median incision below umbilicus. Invagination (ileo-cæcal) reduced without much difficulty, although its exposure required the removal from the abdominal cavity of a large proportion of the small intestine.

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No.	Reference to Operator.	Age and Sex.	Condition, Symptoms, and Treatment before Operation.	Duration of Disease before Operation.	Result.	Remarks.
15	Howse, Med. Chirg. Transact., 1876.	33 yrs., F.	Gradually increasing symptoms of obstruction. Pain, vomiting, and abdominal tumor, varying in position. Inflation practised three times without success.	18 days.	Recovered.	Incision four inches in length opposite umbilicus. Tumor withdrawn from abdomen, and more than eighteen inches of intestine reduced. Invagination ileo-cæcal. No adhesions.
16	Hutchinson, Med. Chirg. Trans., 1876.	6 mos.	Symptoms acute from the beginning; pain, vomiting, evacuation of bloody mucus, and tenesmus; invaginated bowel felt in rectum and through abdominal wall. Injections had failed. Patient extremely weak at time of operation.	4 days.	Died 8 hours after operation.	Long incision in median line; invagination reduced with difficulty; no adhesion; some escape of fæces from a puncture of the small intestine, made to relieve distention. *Post-mortem* revealed almost universal peritonitis.
17	Bell, London Lancet, Jan. 1, 1876.	15 mos., M.	Vomiting, constipation, tenesmus, and passage of bloody mucus; tumor felt *per rectum* and through abdominal wall. Abdominal tympanites. Injections and inflation unsuccessful.	5 days.	Died 7 hours after operation.	Median excision extending from one inch above umbilicus nearly to symphysis pubis. Intestines congested; transverse and descending colon invaginated and irreducible. Artificial anus established by opening bowel above intussusception. *Post-mortem* showed slight adhesions, much induration of the invaginated parts, and recent lymph between intestinal folds.
18	British Med. Jl., Sept. 16, 1876.	9 mos.	Retching, and bloody stools. Ileo-cæcal valve recognized on surface of intestine protruding from anus.	7 days.	Died a few hours after operation.	Disinvagination effected by squeezing intestine. Patient died in collapse. *Post-mortem* showed peritoneal adhesions, and hemorrhage in mesentery. It was thought that earlier treatment might have been successful.
19	Morris, London Lancet, Jan. 20, 1877.	12 yrs., M.	Pain, vomiting, constipation, and passage of blood from the bowel. Tumor felt in rectum. Injections tried without success.	7 days.	Not known; case reported on day of operation.	Abdominal section revealed an intussusception of ileum, with sloughing of intestine; seventeen inches of ileum removed, and divided ends stitched to margins of opening in abdominal wall.

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No.	Reference to Operator.	Age and Sex.	Condition, Symptoms, and Treatment before Operation.	Duration of Disease before Operation.	Result.	Remarks.
20	Howse, Med. Chirg. Trans., vol. lix., 1876.	5 mos.	Muco-sanguinolent discharges. Ileo-cæcal valve had protruded from anus for some days. Case had been mistaken for prolapse of the rectum.	1 m'nth	Died a few hours after operation.	Intestine, which was softened, ruptured under gentle traction. Four inches cut away, and healthy intestine above and below united by sutures.
21	Sands, case herewith reported.	6 mos., F.	Pain, vomiting, tenesmus, and passage of bloody mucus. Tumor felt in rectum and through abdominal wall. Inflation and injection only partially successful.	18 hours.	Recovered.	Median incision below umbilicus. Cæcum invaginated, indurated, and ecchymotic. Reduction effected by squeezing intestine rather than by traction.

Résumé:—Many more cases, some of great interest, have been presented to the Society. The *sex* is mentioned in twelve cases only, of which six were males, and six females.

The *ages* were: 3 days, one; 17 days, one; 4 months, four; 5 months, two; 11 months, one; 12 months, one; 13 months, one; 19 months, one; 3 years, one; 5 years, one; 9 years, one; 17 years, one; 27 years, one; 31 years, one; 33 years, one; 47 years, one; and one case is mentioned as an adult male, and another as a young woman.

In fourteen cases the invagination was in the ileum; in four cases, of the ileum into the cæcum; in four cases, of the ileum into the colon; in two cases, of the ascending colon into the descending; in one case, of the colon into the sigmoid flexure; in one case, of the colon into the rectum; and in four cases there was sloughing and discharge of larger or smaller portions of the ileum. One case was attended with polypus in the ileum; five cases were connected with cerebral disease; three cases had no bloody discharges, but were probably secondary to brain disease.

The majority of the cases presented symptoms during life, and were diagnosed. Only those following cerebral disease were overlooked.

NOTE ON INTUSSUSCEPTION.

Intussusception is rarer in the adult than in the infant, and is sometimes caused by growths in the wall of the bowel, especially in the colon. In these

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cases the obstruction is not complete at first, and death may not occur for some weeks. When death is sudden, except in infants, the strangulation has more probably been caused by bands.

Every intussusception presents at least three layers; the outer one, called the sheath, an inner and a middle one. The mucous membrane of the middle one looks outward, and is in contact with the mucous membrane of the sheath. The inner has its serous membrane applied to that of the middle layer, *and here adhesions may take place*, and a natural cure follows when a portion of the intestine has sloughed off. In twenty-nine cases of separation or sloughing off of the invaginated part, Dr. Peacock found the ileum involved in twenty-two instances. Recovery is sometimes complete, but the patient generally suffers afterwards with signs of abdominal obstruction. Wilks and Moxon found two cases of fatal annular stricture of the ileum, doubtless due to previous intussusception. The piece of bowel passed may be small, but may vary from two to forty inches. Dr. Peacock gives one remarkable instance in which eight pieces were passed in the course of three years, amounting in all to twelve feet.

The seat of strangulation is always at the junction of the middle with the outer tube. Here the bowel is thickened, sometimes to the extent of three-quarters of an inch, its mucous membrane intensely congested or eroded, or hanging in sloughy shreds, whence comes the bleeding so characteristic of invagination.

In infants it is very common in those who have died from cerebral disease, especially hydrocephalus. It is very often consecutive to diarrhœa, and may then speedily bring the little patient into a condition of extreme danger. It is supposed that the upper portion of the bowel becomes contracted and the lower relaxed, so that the former easily passes downward for some distance; then the traction exerted upon it by the mesenteric fold that belongs to the inverted portion of the intestine drags it obliquely towards the mesenteric wall of the sheath, and presses it against the side, so as almost to close the orifice of the bowel. Hence, the mesentery acts a very important part in the process.

NOTE ON POLYPI OF THE INTESTINES.

Rokitansky has described *erectile* growths in the intestinal canal both in the form of sessile tumors and pediculated polypi. *Fibrous polypi* are occasionally seen, which may be livid in appearance and plentifully supplied with blood-vessels. These polypi may give rise to invagination and its consequences.

According to Dr. Francis Delafield, *myomatous* tumors, composed of smooth muscle and fibrous tissue, are found as small, rounded, hard bodies. They start from the muscular coat, but soon project into the submucous tissue and push the mucous membrane inward. They may entirely obstruct the cavity of the intestine, and may then be seized by the peristaltic action

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of the bowels and produce an intussusception. When seated in the duodenum they may obstruct the opening of the biliary duct.

Lipomatous, or fatty tumors, sessile or pediculated, originate in the submucous tissue, where fat-vesicles always exist, and then grow inwardly. They may occur in any part of the intestinal tract, project beneath the mucous coat, and form polypi of considerable length.

Adenoid or glandular growths usually occur in the intestines in the form of polypoid tumors. They are most frequent in the rectum and in children. They may be single or multiple, large or small, rounded or polypoid. They consist of long, glandular follicles, lined with cylindrical epithelium, and are contained in a fibro-cellular stroma.

According to Wilks and Moxon, all growths of a polypoid form are most common in the rectum, where they are apt to be small and round, fibro-cellular in structure, and highly vascular. Sometimes they are composed of glandular tissue like that of the mucous membrane itself, and then resemble cylindrical epithelial cancer; except that, in the latter there is more intestinal texture loaded with active nuclei.

The solitary glands of the colon may enlarge and become pendulous, and sometimes a bunch of pedunculated tumors, very similar to those met with in the bladder, may be seen.

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10.—FIBRINOUS EXUDATIONS FROM CROUPOUS INFLAMMATION OF THE MUCOUS MEMBRANE OF THE INTESTINES.

Case 1. By Dr. John C. Peters, November 11, 1868.

A lady, aged 38, previously perfectly healthy, with the exception of menorrhagic dysmenorrhœa, was exposed five weeks ago to severe cold, when very slightly clad with linen underclothing.

The first force of the attack seemed to fall upon the uterus and ovaries, with severe pain—more severe than the patient had ever before experienced—followed by hemorrhage two weeks after the regular menstrual period, and almost as copious as a usual menstrual discharge.

Next there was severe pain in the abdomen, with tympanitis and tenderness; pulse ranging from 80 and 96 to 120, but always soft—never hard. A portion of the abdominal distress was finally relieved, but pain about the umbilicus persisted night and day, except when under the influence of anodynes, for fully five weeks.

Next, pain and tenderness about the region of the liver was followed by jaundice, which was referred to a catarrhal inflammation of the duodenum, extending to the ductus communis choledochus and other gall-ducts. At least, the German pathologists refer seven or eight cases out of ten of jaundice to this cause.

Cough and severe stabbing pain about the right side led to an examination of the chest, when dulness on percussion, and the presence of bronchial respiration, led to the inference that pneumonia in the second stage was present. But subsequent observations proved that pleurisy with effusion was the real trouble. The left side was slightly affected in the same manner.

Pain about the loins and the darkness and scantiness of the urine led to an examination of that fluid, and blood-globules, blood-casts, and albumen were found in it, showing that there was more or less congestion of the kidneys.

Finally, all these pains, symptoms, and disorders slowly disappeared, but the suffering in the abdomen, especially about the um-

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bilicus remained, almost as severe as ever, except when blunted by opiates and other anodynes.

Small quantities of blood and mucus had been occasionally observed in the evacuations, but no particular stress was laid upon them until October 26, 1868, when, during a free operation of the bowels from purgatives and enemas, a large tubular mass, nearly three feet in length in all, was passed; forming almost a complete cast of the internal surface of a portion of the bowels, composed apparently of fibrinous exudation, like croup-membrane, and containing fæces at some points. It seems as if a pseudo-membranous or croupous enteritis had been at the bottom of this severe and obstinate abdominal trouble from the commencement to the end.

Viewed with the microscope, this substance was seen to be very imperfectly fibrillated, many portions indeed being entirely devoid of any apparent effort to form fibre.

All these parts were thickly covered by amorphous granular matter, fat-globules, granular nucleolar bodies, some with nucleoli, nucleolated cells, blood-corpuscles, and fat-globules. In other parts there was apparent effort at fibrillation, but the substance of even that portion was studded with the objects above described. Most of the fibrillæ of these regions were seen to be shining points, to all appearance like fine oil-globules, and were regarded as fibres in the state of fatty degeneration.

The substance was, therefore, regarded as originally a fibrinous exudation, but, as now seen, it is so much degenerated as to be ranked as the *corpuscular variety* of fibrinous exudation.

Case 2. By Dr. Alonzo Clark, 1851.—Tubular intestinal croup-membranes formed in a middle-aged woman. They were as highly organized as false membranes from mucous membranes can be. She had had repeated attacks of pain in the right side, sometimes colicky, sometimes persistent for a week, followed by the discharge of a quart, more or less, of these membranes. Sometimes they seemed to be excited by the passage of gall-stones.

Case 3. By Dr. Alonzo Clark, 1851.—Pseudo-membranes were discharged from the intestines of a child, which recovered.

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CASE 4. By DR. JOSEPH C. HUTCHINSON, 1855.—A tube of false membrane ten inches in length, passed from the bowels during an attack of dysentery.

CASE 5. By DR. ALONZO CLARK, 1855.—Numberless false membranes were discharged from the bowels of a lady. He had never seen them expelled in dysentery, but had repeatedly seen shreds of false membrane cast off in that disease in which organization was less advanced. The lady, æt. 45, appeared to possess an exhaustless factory of cells, which she passed in large quantities every two or four weeks. They were held together by a hyaline membrane, and some of the cells were elongated almost into fibres.

CASE 6. By DR. ALONZO CLARK, 1858.—There were membranous discharges from the intestines, having very variable appearances in different specimens. In some they were as well formed as croup-membranes, while in others a mere tough mucus held certain cells in its substance, which might be susceptible of plastic changes. Many patients suffering with it recover. It has been noticed in cases of paraplegia with constipation of the bowels. Another patient discharged large quantities for months in succession.

Dr. Markoe remarked that almost all the cases of membranous exudation from the bowels have occurred in females.

NOTE ON CROUPOUS INFLAMMATION, OR THE FORMATION OF FALSE MEMBRANES IN THE INTESTINES.

The quantity of exudation which is formed varies much in quantity. Sometimes it occasions a layer of some thickness, extending pretty uniformly over the surface, or appearing in the stools like tubular casts of the intestines. At other times it is as thin as a wafer, or consists merely of tattered shreds. Dr. Copland gives one case in which there were also shreds of dysmenorrheal false membrane discharged from the uterus at the same time. It is remarkable that the attacks often recur several times, and have been mistaken for sloughing of the bowels.

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11.—CONSTRICTIONS AND INCARCERATIONS OF THE BOWELS FROM OLD ADHESIVE BANDS, APERTURES IN THE MESENTERY, ETC.

Case 1. By Dr. Osgood Mason, March, 1875.

The patient, E. W., was a young man 21 years of age, of good general health and constitution, actively engaged in business, of regular and temperate habits. Gave no history of any severe illness since infancy, when, however, there had been an unusual amount of trouble with the bowels.

For the past few months, without any very special ailment, he had not appeared as well as usual; so much so as to attract the notice of his friends.

On Sunday, February 28th, he ate a hearty dinner of rather indigestible materials, amongst which he mentioned goose and pickles, after which he rode up-town in the cars. The day was cold and raw; yet, in spite of the remonstrances of his companions, he rode the whole distance on the front platform. He called upon a friend, was in his usual health and spirits, went back to his lodgings, retired early, and about ten o'clock in the evening was attacked with vomiting, which recurred at short intervals all night, and still continued.

What he first vomited was his dinner, entirely undigested, and, as he laughingly expressed it, "in fearful chunks—that size;" and to illustrate, held up his hand with the thumb and forefinger meeting at the tips. He was habitually constipated, and had a movement from the bowels on Sunday morning, but not since, though he had a desire therefor, and had made several attempts since the vomiting commenced.

He lay indifferently upon his back, or right side, with his limbs extended, or sometimes slightly drawn up. His face was pale, but not expressive of severe pain, or apprehension. Pulse less than 100, and of good volume. He only complained of occasional griping, or colicky pains, frequently followed by vomiting rather violent in character, when he simply threw up the water, or what-

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ever he had just taken, untinged even with bile. There was no local tenderness, but some general soreness of the abdominal muscles from the frequent vomiting. The case was regarded as one of vomiting from indigestion and gastric irritation, with constipation, and possibly serious obstruction. Ordered copious warm enemas, warm applications externally, and opiates sufficient to quiet the stomach and secure sleep.

On Tuesday the patient seemed a good deal better; had slept some, vomited at intervals of four or five hours only; pulse 88, and firm. Bowels had not been moved, and large enemas were again properly given, with no effect. Gave a hypodermic injection of morphine, which was repeated in the evening, and opiates were ordered sufficient to keep up the effect.

On Wednesday morning the patient was not as well; had a more anxious expression; complained of some pain in the umbilical region, which he said extended up to the right shoulder-blade. There was tenderness and some dulness in the left hypogastric region, but the abdomen was flat and without tympanitis. Dr. Loomis now diagnosed local peritonitis, with obstruction either at the sigmoid flexure of the colon, or in some of the small intestines. The copious injections which had been taken and retained excluded the former supposition, and the latter, therefore, was accepted as the true one. The prognosis was regarded as bad. The opium treatment was continued and pushed still more vigorously; but on Thursday peritonitis became general over the hypogastric region, the vomiting was frequent and stercoraceous, collapse occurred, and the case terminated fatally on the sixth day.

Autopsy.—Upon opening the abdominal cavity a considerable quantity of dark-colored serum was found; the intestines were distended with gas, and showed blood-vessels at various points highly injected. Numerous patches of exudation were discovered in the hypogastric region, upon the peritoneum, both of the intestines and abdominal walls, especially upon the left side. The large intestines were empty, with the exception of a few small fecal masses in the cæcum and commencement of the colon. The ileum, which was also nearly empty, was very small, and at first view presented the appearance of an immensely elongated vermiform appendix. The jejunum was unusually large, distended with gas, and partly filled with fluid fecal matter. At the lower extremity of this portion of

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intestine, and near its junction with the ileum, was found the condition of things shown in the accompanying specimen. It consisted of a portion of intestine about four feet in length, gathered up into an irregular mass, and bound together chiefly, but not wholly, along the mesenteric border by firm fibrous bands and adhesions of a pretty old, but entirely undetermined date. The main points of adhesion and the firmest of the fibrous attachments occupied a space of about four inches at the very extremity of the jejunum, or commencement of the ileum. This was the chief point of obstruction, and gave the impression of a much closer stricture and firmer resistance when first removed than is at present shown by the specimen. Above this point the jejunum was dilated and unusually filled; while below, the ileum was much diminished in size, and also remarkably empty. Beyond what has been described, the most noticeable morbid change was found in the condition of the mesenteric glands, which were somewhat enlarged, and, for some distance about the main point of adhesion, both in the free mesentery and in that which forms the covering of the gut, had undergone complete calcareous degeneration.

The conclusions arrived at were:

1st. That the case was necessarily fatal, and that no treatment, either medical or surgical, could have secured a favorable result.

2d. That the history of the case, together with the post-mortem appearances, indicate that the vomiting commenced in consequence of indigestion and gastric irritation; that the resulting congestion caused occlusion of the already contracted intestine, thus setting up, first, local, and then general peritonitis.

3d. That this case adds another to the long list where careful examination has proved peritonitis to have had a direct and appreciable cause, in contradistinction to those cases which usually pass under the name of idiopathic peritonitis.

Case 2. By Dr. E. Krackowizer, 1852.—A short distance above the ileo-cæcal valve, a bridle or false ligament existed on the anterior side of the cæcum, drawing about three inches of that tube into the space of about three-quarters of an inch, thus forming a

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pouch posteriorly; in a woman who died on the fourth day after delivery, of puerperal peritonitis.

CASE 3. By DR. LEWIS A. SAYRE, 1850.—The cæcum was attached at the left side, and formed a band across the promontory of the sacrum, under which the bowels had slipped, and there became strangulated. Sudden, severe pain was followed by death in twenty-four hours.

CASE 4. By DR. ELISHA HARRIS, 1852.—A short thread of false membrane extended from the bowel to the abdominal walls, causing strangulation. Just above the point of strangulation there was a perforation, or laceration, through which fæcal matters had been effused into the abdomen.

CASE 5. By DR. JAMES R. WOOD, 1852.—There was internal strangulation from a loop of intestine falling over an old peritoneal band.

CASE 6. By DR. JOHN T. METCALFE, 1852.—Sudden and rapidly increasing pain, tympanitis, and the usual symptoms of strangulated hernia, were followed by death in twenty-four hours.

Autopsy.—Peritonitis, and a quart of bloody serum in abdomen. A large opening in the omentum, about an inch in diameter, was found, through which forty-one inches of the colon, and two loops of small intestine, one about twelve, the other six inches in length, had passed. All of which were black from strangulation.

CASE 7. By DR. JOHN C. DALTON, 1853.—In a woman æt. 78, who had intense paroxysmal pain for three days, with excessive tenderness of the abdomen, especially on the right side; great distention of abdomen and obstinate constipation. A tumor of the size of a pullet egg was found in the right groin. At the operation for hernia, a hernial sac only was found, with no intestine or omentum in it; its neck was obliterated at the internal ring by old adhesive inflammation. Death occurred twenty-four hours after the operation.

Autopsy.—Recent general peritonitis and abundant traces of a former attack. There was internal strangulation of the small intes-

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tine over a firm round cord of adventitious membrane, extending from the free edge of the ilium, encircling the strangulated portion, and attached by its opposite extremity to a part of the mesentery, in which there were two calculous concretions, apparently phlebolites. The strangulated portion was about eighteen inches in length, deeply congested, and its folds adherent to each other by soft recent exudation.

Case 8. By Dr. James R. Wood, 1852.—There was internal strangulation from a portion of the bowel passing through a hole in the mesentery.

Case 9. By Dr. Thomas C. Finnell, 1855.—There was strangulation of two feet of the ileum, which had passed under the sigmoid flexure of the colon, where the peritoneum is deficient at the upper part of the rectum, and there twisted upon itself; in a man æt. 27, who only lived forty hours after an attack of colic, constipation, vomiting, etc.

Case 10. By Dr. Erskine Mason, 1867.—The sigmoid flexure of the colon and greater portion of the descending colon were forced through an opening in the mesentery, and actually in a state of gangrene.

Case 11. By Dr. J. Lewis Smith, 1869.—Dr. S. presented a similar specimen, in which almost the entire small intestine had become strangulated; and, in consequence, the capillaries had ruptured, accounting for the very rapid death of the patient.

Case 12. By Dr. Alfred C. Post, 1867.—A child died with symptoms of strangulated hernia. He found five feet of small intestine strangulated through an opening formed by an adventitious band attached to the mesentery. The first symptoms were those which followed swallowing a peanut-shell; but severer abdominal symptoms soon after appeared. The adventitious band seemed to contain in its centre a piece of fish-fin, previously swallowed; and which, after having ulcerated its way through the intestine, became enclosed in fibrinous exudation.

Case 13. By Dr. J. Lewis Smith, April 27, 1864.—A middle-aged married lady had suffered from severe and protracted inter-

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mittent fever, from which, however, she had recovered. Two weeks before her death she was attacked, during the night, with severe colicky pains, which passed away by morning. Sixty hours before her death she had a similar seizure. There was one free movement of the bowels, at the beginning of the attack, followed by obstinate constipation. The abdominal pain was soon accompanied by persistent vomiting, then she suddenly fell into collapse, and remained so until her death.

Autopsy.—The lower part of the great omentum was attached to the bladder by old adhesions. There was a band of membrane passing from a point between the duodenum and stomach to a spot on the posterior walls of the abdomen. This band had strangulated the entire length of the ileum and the lower part of the jejunum. The strangulated intestine was intensely congested and contained three pints of blood. In the abdominal cavity there was also a little fluid blood.

CASE 14. By DR. BAUER, January 9, 1867.—A negro, aged 37, was suddenly attacked with intense pain in the abdomen and incessant vomiting. From the fact that a copious alvine discharge was effected, no suspicions were entertained of internal obstruction. The man rapidly sank and died twenty-seven hours after the commencement of the attack.

Autopsy.—There was a *perforation in the mesentery*, near the attachment of the gut, in which two loops of the small intestine had become strangulated. Below the stricture the bowel was distended and infiltrated with blood. There were no evidences of peritonitis.

CASE 15. *Congenital Occlusion of the Ileum.*—By DR. KRACKOWIZER, April 23, 1862.—A well-formed child, one of twins, born at term, on the second day after its birth passed a little meconium, but after that had no evacuation from the bowels. The child took its food regularly, and on every fourth day would vomit a quantity of fæcal matter. No obstruction of the rectum could be detected; the urine was passed freely; the child lived in this way for five weeks.

Autopsy.—There were no evidences of peritonitis. The ileum for twelve inches above the caput coli was completely occluded

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and converted into a small round cord. Above this the intestine was dilated. The large bowel was of the ordinary size.

CASE 16. By DR. GEORGE T. ELLIOT, 1858.—The intestine was doubled upon itself. It turned sharply upon itself, and then doubled round underneath another portion. There was no strangulation as yet.

CASE 17. By DR. THOMAS C. FINNELL, 1855.—The ileum was twisted upon itself several times, forming a complete strangulation. The bowels above and below were empty. There was no inflammation. In a man æt. 24, who lived four days, with pain and distress over the stomach, vomiting, etc.

CASE 18. By DR. J. W. WRIGHT, 1870.—A carman, aged 50, had suffered for the past sixteen years with dyspepsia and occasional attacks of violent colic with flatulent distention. The only relief was from large doses of cathartics. The abdomen was enormously distended and tympanitic, and all the other symptoms were those of internal strangulation. A diagnosis was made accordingly. He died in eight days from exhaustion, the result of obstinate vomiting and continued pain.

Autopsy.—The cause for the enormous distention was found in the condition of the section of ileum presented. It was fifteen inches in length and had seemingly been twisted at each extremity, so that the confined gas had distended it, at its largest point, to a *diameter of eight inches.* The upper twist was gangrenous. The coats of the diseased portion were much thickened, and the whole presented the shape and general appearance of a good-sized stomach. There was no peritonitis anywhere. No feculent matter was found in the sac or in its neighborhood; and there were no evidences of localized inflammation of the gut at the point involved in the lesion.

Such a condition of things is not unknown in pathological anatomy, although very rare. Jones and Sieveking refer to it as occasionally occurring. Dr. S. Rogers had met with instances of localized distention from membranous bands, adhesions to contiguous parts, and intussusceptions.

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CASE 19. *Intestinal Obstruction—Laparotomy.*

By DR. ERSKINE MASON, May 12, 1875.

Dr. Erskine Mason presented a specimen of intestinal obstruction, for the relief of which he had performed an operation.

Dr. Loomis remarked that this was the third case he had seen in which, at the autopsy, the obstructions had been found in the small intestine. From what he had seen of the other cases, he was of the opinion that peritonitis existed at the time the consultation was held, and that any operation for the relief of the patient would have been useless.

Dr. Mason remarked that had the band which extended from the Fallopian tube to the ileum been detected, it could have been divided without injury. The real difficulty was in the adhesion of the adjoining portions of the intestine, which made it impossible to straighten out the same.

Dr. Jacobi remarked that most of our reasoning in these cases must be theoretical. This being the case, he believed it would be safer and better to remove the intestine from underneath the constricting band, rather than run any risk of exciting peritonitis by tearing or cutting these constrictions.

Dr. Mason stated that in his case, on account of adhesions of different portions of the gut, such a procedure was impossible.

Dr. Post did not see why the bands in question could not be divided with as much safety in these cases as in those of strangulated hernia. The difficulty, however, would be in diagnosticating their precise situation and extent.

Dr. Jacobi believed that a diagnosis could generally be made with some degree of certainty in ordinary cases. When there is vomiting very soon after anything is swallowed, and this vomiting is not stercoraceous, the obstruction is apt to be high up and in the small intestines. Such a diagnosis can be further confirmed by the occurrence of numerous passages after an obstruction is supposed to exist.

Dr. Loomis, in this connection, remarked that almost all the old adhesions were to be found in the small intestines.

Dr. Mason stated that fully ninty-five per cent. of the cases were in that category.

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Résumé.—The *sex* is mentioned in five cases, viz., two males and three females.

The age, in three cases only, respectively 21, 50, and 78 years.

The duodenum was involved in one case; the ileum in nine cases; the cæcum in two cases; the colon in one case; two cases were volvulus, or twisting of the bowels upon themselves; in one case the ileum had got under the sigmoid flexure; in six cases, bands were found; in one case the band extended to the mesentery; in one case, to a Fallopian tube; in four cases there were openings in the mesentery; in one case there was congenital occlusion of the ileum.

NOTE.—Incarceration of the bowel is a relatively frequent cause of death. A portion becomes imprisoned and strangulated by a band around it, which is sometimes formed by a diverticulum of the ileum, or by the vermiform appendix; the latter is exceedingly variable in length and position, and may become attached at its end, so as to form a loop which may easily entangle a coil of the small bowel. A diverticulum of the ileum, which may have dwindled down to a cord, may become a similar snare. The colon may be crossed at its splenic flexure by a simple thickening of the peritoneum, and thus strangulated. Or the omentum may be attached to an ovarian tumor; or adhesion may be caused by tuberculous or other ulcerations within the bowel; or a loop may be produced by adhesions about the appendices of the broad ligament of the uterus. The small intestine is most apt to be caught in these loops.

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12.—STRICTURES OF THE INTESTINES.

Case 1. *Partial Stricture of Intestine—Purulent Infiltration of the Rectal Walls.*

By Dr. Francis Delafield, February 24, 1875.

Dr. Delafield exhibited specimens from a patient of Bellevue Hospital, who, three months before admission, sustained a severe injury of his shoulder by a fall. He, however, was able to continue his work as a laborer until three weeks before seeking hospital relief. He then was losing the use of his legs, and within a few days he had complete paraplegia. When he was brought into the hospital the power of motion in both legs was lost, but there was still some sensation left. It was found, on examining the spine, that over the seventh dorsal vertebra there was an angular curvature outwards, and it was supposed that either a fracture had occurred, or that caries existed at that point. Three days before his death he was suddenly seized with incessant vomiting, and at the same time his abdomen began to swell. Before this he had suffered from constipation, not difficult to relieve by the usual purgatives and enemata. The swelling of the abdomen was tympanitic in character, and this, with the vomiting, continued to increase until death.

Autopsy.—The seventh dorsal vertebra was found almost destroyed, its body being converted into a cheesy mass, presenting the ordinary appearance of caries of the spine. In consequence of the destruction of this body, the spinal cord was bent and compressed. Points of greater interest were found in the abdominal cavity. The small intestine, from the lower part of the ileum to the duodenum, was very much dilated, and also coated by recent fibrine. On following down the small intestine, it was found that in the lower part of the ileum there were two points of obstruction, *due to the coiling of the gut upon itself*, the result of old peritonitis. In the lower part of the colon, just above the sigmoid flexure, there was another small obstruction produced in the same way. None of these obstructions were complete. On following down the large intestine to the

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rectum, the entire extent of the latter was infiltrated with pus, between the peritoneal and mucous coats. There was some slight purulent infiltration of the surrounding tissue. The patient's history did not throw any light on these conditions, neither did they seem to have given him any special trouble. The noteworthy point was *the purulent infiltration of the walls of the rectum*, without any coexistent disease of the mucous membrane, and apparently not caused by anything existing in the pelvic cavity.

Case 2. By Dr. Willard Parker, 1857.

In a woman, æt. 63, who had constipation alternating with diarrhœa for eighteen months, attended with faintness, and severe pain extending around the epigastric region to the spine. Her recovery was followed some weeks after by obstinate stercoraceous vomiting, which was excited by the slightest causes. She recovered again for about a month, when she had another severe attack of pain and stercoraceous vomiting. The abdomen now became large and swollen; the vermicular motions of the intestines were plainly visible through its walls. She again had a partial recovery. A stricture was diagnosed, but none could be found.

Autopsy.—The calibre of the small intestines nearly as great as that of the large, viz., about two inches in diameter. The small intestines were fairly loaded down with fæces. The obstruction was in the right iliac region, and was so complete as to retain water, and could be covered by the end of a finger. The stricture was about one and a half inches below the ileo-cæcal valve. The end of the appendix vermiformis was also attached to the mass, which constituted the stricture. There was a cretaceous mass of carbonate of lime in the appendix, and as the patient lived in a lime-water district; it was supposed that the vermiform appendix had become inflamed first, with extension of the disease to the adjoining parts causing the stricture. *The case is almost unique*, for nearly all examples of stricture of the intestine are connected with malignant disease. Stercoraceous vomiting from obstruction in the small bowels is not very uncommon in strangulated hernia, and it has been induced by ether in a girl who had been constipated eight or

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nine days. Fæcal matter is not regurgitated from the large intestine, but when these are filled with fæces, the column of refuse matter rises into the small intestine to a greater or less extent. In the case of the girl a cylinder of fæces three inches long and three-quarters of an inch in diameter, came up into her mouth. Spherical and ovoid masses of fæces have occasionally been found in the ileum, and in some cases of stricture wash-basinfuls of fæcal matter had been vomited up from time to time. Still there is always some difference between the refuse and fæcal substances which form in the small intestine, and those which are made in the large. Regurgitation through the ileo-cæcal valve is very rare; still, castor-oil injected into the rectum and colon has been known to be vomited up; and in a case of strangulation of the ileum, in a case of hernia, the injection came up through the mouth, although only a part of the calibre of the ileum was involved.

Case 3. By Dr. Henry B. Sands, 1865.

Dr. Sands exhibited several specimens from a young man who had suffered from the effects of chronic intestinal obstruction, and on whom he had performed Amussat's operation for artificial anus, with complete relief from the distressing symptoms which preceded it. The swelling of the abdomen subsided, the pain disappeared, and the fæces escaped readily through the artificial opening. The patient gained strength, his appetite improved, and in three weeks he was able to get up and walk about.

For ten days after the operation, the discharge of fæces through the wound was nearly constant, but subsequent to this it was intermittent and irregular; sometimes taking place spontaneously, at other times by the aid of enemas of warm water, or only after the administration of a laxative. The artificial anus showed the usual tendency to contraction, to obviate which, as well as to prevent the involuntary escape of fæcal matter, the patient wore a cylindrical plug of hard rubber attached to a plate of the same, the whole being retained in position by tapes passing around the waist. This apparatus answered its purpose admirably, and was worn for some time with great comfort, but was finally abandoned in consequence

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of the orifice of the intestine becoming inflamed by repeated introductions of the syringe.

On the 27th of February the patient had so far improved that he left the hospital, but returned on the 3d of March complaining of pain and abdominal distention. Fæces were discharged in small quantity, and at irregular intervals, from both the natural and artificial outlets, yet the relief was incomplete. An attempt was made to dilate the strictured intestine by an elastic bougie introduced through the artificial anus, but was unsuccessful; the instrument being suddenly and completely arrested at a point opposite the internal abdominal ring, and about eight inches from the lumbar opening.

The subsequent symptoms were mainly those which had existed previous to the performance of Amussat's operation, and pointed to the presence of mechanical obstruction at some *other* point than that for which the operation had been undertaken. Gradually increasing abdominal distention, obstinate constipation, loss of appetite, emaciation, and paroxysms of intense pain finally exhausted the patient, who died suddenly less than four months after the operation.

Autopsy.—Abdomen somewhat distended and tympanitic. The right lung presented, near its apex, two masses of tubercular deposit, each a little larger than a hazel-nut. One was in process of softening; the other had undergone calcification.

In the abdomen, small yellowish white tuberculous nodules and patches were found scattered abundantly beneath the peritoneum lining the abdominal walls, and that covering the large and small intestine, and also in the substance of the great omentum. The omentum was misshapen, folded upon itself, and adherent to the small intestine, the coils of which were universally adherent to one another; the union being in some places so firm as to resist all attempts at separation. Immediately above, and in the upper third of the pelvic cavity, the coats of the small intestine were greatly thickened and indurated, from chronic inflammatory deposit, so that its convolutions formed a nearly solid mass, firmly adherent to the posterior abdominal wall, and to the anterior surface of the rectum. The coats of the latter exhibited the same kind of thickening and induration, especially just above the promontory of the sacrum, where its calibre was so much diminished as hardly to admit the

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tip of the little finger. In all that portion of small intestine included in the mass above described, embracing several feet of its length, the canal was narrowed in its diameter, and in three or four places was only large enough to give passage to a full-sized steel bougie. Absolute obliteration of the intestinal canal was, however, nowhere to be seen. The large intestine, with the exception of the lower part of the sigmoid flexure and the rectum, was slightly thickened, but its calibre was normal. There were no evidences of ulceration of the intestinal mucous membrane, either past or present. The artificial opening in the colon was quite behind the peritoneum, and no traces of inflammation were observed. The symptoms during life were due to chronic intestinal obstruction, caused by tubercular peritonitis. The obstruction made its appearance in the lower part of the sigmoid flexure of the colon at a time when the passage of fæcal matters through the small intestine was tolerably free, so that the formation of an artificial anus afforded complete relief for some time after the operation. Gradually, however, the disease extended to the small intestine, giving rise to mechanical obstruction, which necessarily hastened to a fatal termination.

Case 4. By Dr. Willard Parker, Dec. 22, 1852.—From a woman, aged 56, who for several weeks before death had no evacuation of the bowels. After death the entire alimentary canal was found enormously distended; in the rectum was a stricture, and a tumor the size of a filbert, of cancerous nature.

Case 5. By D. A. Loomis, 1871.—Dr. L. presented portions of the colon, cæcum, and ileum. The patient had always been a hard-working man, temperate, never had syphilis, and had enjoyed good health until within two months, when he became subject to attacks of very severe colicky pains radiating from the epigastrium, which would last for a few seconds at a time, and seemed to be relieved by firm pressure. Four weeks before, while examining his abdomen, he noticed a tumor in the right inguinal region, which had the feeling of a rubber ball, was oblong, and seemed to separate into two parts. Very soon after this handling, the patient passed a quantity of blood per rectum. He never had vomiting to any marked degree, but occasionally suffered from diarrhœa, and the side became very painful. He began to lose flesh and strength, and became very anæ-

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mic. Examination revealed a tumor in the right inguinal region, having its upper border about an inch below the free edge of the liver, and extending downward three and a half inches, and two inches and a half in transverse measurement. Soon after his admission a drastic purgative was administered, and the tumor could not be found at a subsequent examination. Dr. L. presented the case to his class, and went over it pretty thoroughly as a matter of diagnosis. The tumor was elastic to the feel, it corresponded in situation and shape to the ascending portion of the large intestine, was somewhat movable, dull on percussion, except over its most prominent portion, which was tympanitic, was smooth, and had somewhat the feel of a floating kidney. The fact that the tumor disappeared after a cathartic had temporarily brought up the probabilities of impacted fæces; but this was excluded, as the mass did not indent as such tumors usually do. Finally, the diagnosis of cancer of the ascending portions of the large intestine was made.

Autopsy.—A tumor was discovered in the right inguinal region corresponding in situation to the swelling found before death, which involved the colon, cæcum, and ileum. It was three inches in length and two and a half inches in breadth. It was developed from the submucous tissue, and encroached so much upon the calibre of the gut as to leave but a very small opening between the ileum and colon. The diseased formation was uniformly deposited throughout the circumference of the intestine, and was undoubtedly cancerous in character.

Case 6. By Dr. George Cochran, 1855.—In a woman aged 62. A hard mass was discovered above and below the umbilicus, which involved the transverse colon especially, but also the stomach, peritoneum, and bladder.

Case 7. *Cancerous Stricture of Transverse Colon.* By Dr. Wood, Feb. 25, 1846.—From a man who for fifteen years had suffered from alternate obstinate constipation and diarrhœa. Towards the end of his life stercoraceous vomiting supervened.

There was found a cancerous stricture of the transverse colon, leaving only room for the passage of a blow-pipe; the bowel above the stricture was much dilated.

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Case 8. By Dr. James R. Wood, November 28, 1860.—In a man æt. 72, who had suffered from constipation for eight years. Then he had no passage for a fortnight, with tympanitis, stercoraceous vomiting, and all the signs of strangulation or invagination of the intestines. Twenty grains calomel were given every four hours, until 200 grains had been taken, causing copious alvine evacuations. A bougie would pass no farther than the junction of the transverse with the descending colon, but he recovered. A similar attack, three weeks after, was relieved in the same way. But death occurred in two weeks more.

Autopsy.—A stricture was found almost occluding the bowel at the junction of the transverse with the descending colon. Above the stricture, the intestine was very much dilated and thickened. It is common enough to find stricture from malignant growths, but in this case there was none; nor any cicatrix of previous ulceration. There was simple thickening of the cellular tissue.

Case 9. *Ulceration and Stricture of the Colon with Perforation.*

By Dr. Alonzo Clark, January 9, 1861.

In a man aged 66, who had been sick for three weeks with unsatisfactory passages, constipation, and pain in the bowels, near the cæcal valve. There was no fulness or tenderness on pressure at first, but in a few days more, the severe pain was followed by some tumefaction. No movement of the bowels could be obtained by active cathartics and injections, which caused tenderness of the abdomen and swelling about the cæcum. The pulse was 110. The pain colicky, with a vast amount of rumbling. There seemed to be no intussusception or hernia, but some mechanical obstruction of bowels. There was no vomiting; but in a few days sudden pain, as if something had burst, was followed by great tympanitis, but no increase of tenderness. Calomel and castor-oil, and injections through a long tube, failed to move the bowels, and were succeeded by gradual sinking, without vomiting. Finally six or eight ounces of warm water were injected every hour and retained for twenty

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minutes, followed by full injections of salt-water, which produced copious, healthy fæcal evacuations.

Autopsy.—There was ulceration of the descending colon nearly opposite the lower part of the left kidney; marked constriction of a dark color, as if the colon had been tied with a black thread; nearly the whole periphery of the colon here had been the seat of chronic ulceration, advancing in one part and healing in another, causing a marked contraction, through which the little finger could scarcely be passed. A vegetation or fungous growth grew directly out of the inferior border of the stricture, forming a sort of plug from below upward. There was great distention of the cæcum and ascending colon, with fæces, from which many cranberries, oats with the husks unbroken, and apple-stems were taken out, some of which had been eaten more than four weeks before. There was a rupture of the peritoneal coat of the bowel five inches long and one and one-half inches wide, below which the muscular coat was laid bare. An ulcer of the mucous coat left only a mere film of areolar tissue, which was also perforated with minute openings, through which numerous little streams of air and of the fluid-contents of the bowels could be made to pass. There was much fœtid gas in the abdomen, and slight peritonitis, marked by a mere film of fibrinous exudation, and some deep injection, least considerable where the peritoneum was ruptured. The fungous growth was a modified epithelial tumor, made up of hypertrophied mucous membrane and columnar epithelium. Had only met with four other cases of stricture of the colon, two of which were cancerous. The escape of carbonic acid gas from the perforation of the intestine had perhaps kept down the peritonitis.

Dr. Alexander Stevens remarked that all organic strictures of the colon that he had seen were malignant; had never seen a stricture of the small intestine.

Dr. Alonzo Clark had seen more than one malignant stricture of small intestine; Cruveilhier gives a plate of one.

Dr. James R. Wood had presented two cases of cancerous stricture of the colon.

Case 10. By Dr. Lewis A. Sayre, 1867.—The patient was 46 years of age, remarkably stout and healthy, weighing about two hundred and fifty pounds. He had had remarkably good health,

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not having been laid up with sickness for twenty years past. His abdomen was distended to its utmost capacity, and he was making ineffectual efforts at stool. This was Tuesday, and he had had no passage since the Saturday previous, when he had his usual difficult stool. By exploring his anus with the finger, no obstruction could be found, but on passing up a flexible rectal bougie for eight or nine inches, I came across a positive stricture, which was so firm that I could not penetrate it at all. The abdomen was very much distended, and he being very fat withal, it was some time before I could satisfy myself of the existence of a tumor in the situation of the sigmoid flexure. Having settled upon this diagnosis, I stated that there was no hope for him, and that he must certainly die very soon. He received the intelligence very composedly, and died at the end of twenty-four hours after.

Autopsy.—The colon was found immensely distended, in some places being as large around as a man's thigh. There was no enteritis present, neither was there any general peritonitis. At the sigmoid flexure a hardened mass was discovered, which rendered it impervious to water from above and below. On removing the mass subsequently it was found to block up the gut so completely as to barely admit the passage of a fine probe. The tumor was cancerous in nature.

Case 11. *Stricture of the Small Intestine.*—By Dr. Thomas E. Satterthwaite, September 12, 1876.—Dr. S. presented a specimen of stricture of the small intestine taken from an Irishman, aged fifty years, a patient of Dr. Hadden. He was taken sick in February last with some bladder trouble, and in course of the treatment Dr. Hadden's attention was directed to a strangulated hernia. This was reduced without any special trouble, but immediately afterwards the patient was seized with peritonitis in the course of two days, after which he died.

Autopsy.—Which was made by Dr. Hadden, revealed general peritonitis. At the point where the hernia had been reduced the intestine was hardened, inflamed, and congested, and marked the situation of the stricture. In fact, three strictures were discovered at this point. The lower one was twelve inches above the ileo-cæcal valve; about three inches above this there was another; and three and a half inches, a third. The middle one was very tight, not

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admitting the little finger. Between them the intestine was deeply congested, and in some places the mucous membrane seemed to be eroded.

CASE 12. *Stricture of the Sigmoid Flexure of the Colon—Colotomy—Examination of Rectum by Hand and Forearm—Points in Diagnosis—Death from Shock.*

BY DR. HENRY B. SANDS, April 24, 1874.

Dr. Sands presented a specimen from a lady, aged 45, upon whom he had performed the operation of colotomy. She was said to have suffered from some impassable obstruction of the bowels for four weeks. He found her somewhat feeble, although not prostrated; her constipation had come on gradually, unattended with vomiting, except on one or two occasions, the result of some of the cathartics. No indication of the nature of the obstruction could be ascertained by external examination. The abdomen was distended pretty evenly with gas in the intestines, but whether the large or small bowel was particularly involved could not be discovered. The track of the colon could not be traced, neither could it be settled that there was a marked accumulation of fæces. Pressure upon the abdominal walls was borne without special complaint, and excited vermicular motions of the intestine, plainly visible through the thin parietes. The emaciation, although considerable, had been quite gradual.

An examination per rectum was made with the finger on the 12th of March, with the assistance of Dr. Sheldon, but the result was negative. Nothing but an empty sac was discovered, and the finger, on being withdrawn, was covered with a slimy mucus, but without the stain or odor of fæces. The day following it was deemed advisable to anæsthetize the patient and examine the rectum by hand. The patient took ether without any trouble, and lay upon her left side, in order to enable Dr. Sands to use his left and smaller hand. This examination was also unattended with any positive result. The hand was passed without any great resistance into the rectum, and with care was gradually and carefully

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pressed forward until the sigmoid flexure was reached, the distance being about twelve inches from the anal orifice, when the forearm was found to be too large to go farther. No stricture was detected by this examination, although the coils of the intestine were felt distended with fæcal matter. An attempt was made to feel the caput coli, but with an obvious disadvantage, as, the left hand being used, the backs of the fingers and the finger-nails only were available. The idea was derived, however, that the small intestine was the seat of the disease, an impression which was not confirmed, in consequence of the necessarily incomplete examination. The attending physician shared in this opinion at that time. The alternative of gastrotomy was thought of, but hardly recommended.

The case was allowed to go on a week longer. The urine was watched, and, as it was considerable in quantity, the hope was entertained that the seat of the difficulty might after all be in the large intestine. It was proposed to give ether once more and make another examination, and to use the right hand, with the understanding that, if the large intestine was involved, to resort to colotomy; and if the stricture was found in the small intestine, to perform gastrotomy.

On the 24th of March, in the presence of Dr. Sheldon, Dr. Miner, of Brooklyn, Dr. Foster Jenkins, of Yonkers, and Dr. John Curtis, of this city, Dr. Sands made the examination, and discovered the case to be one of stricture of the colon, the caput coli being enormously distended with fæcal matter. No time was then to be lost in performing lumbar colotomy. Even in the second examination the point of stricture was not discovered, a fact of considerable clinical interest, inasmuch *as this point was only fifteen inches from the anus.*

The operation was performed on the *right* side, according to Amussat's method, and without accident. On opening the ascending colon the fæces escaped pretty copiously. The patient was very feeble at the time, and he was not surprised to learn that she died the next day, from shock, just twenty-four hours after.

Autopsy.—There were no evidences of peritoneal inflammation. The opening made in the colon by the operation was found to be of the usual size and unattended with any injury to the peritoneum. This portion of the gut was removed for a specimen, as well as a portion of the liver adherent. Another specimen removed was the

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caput coli, which, by a separation of the longitudinal muscular fibres at certain points, and a rupture of the peritoneal coat in two or three places, exhibited in a curious manner the results of extreme distention.

The seat of stricture, which *was in the sigmoid flexure, and fifteen inches from the anal orifice*, was also exhibited. This stricture, which occupied fully one-half the circumference of the intestine, was formed by a deposit of morbid tissue, the precise nature of which Dr. S. was unable to determine until a thorough examination of it could be made. It was suspected, however, to be sarcomatous material, judging from the appearance of a similar and secondary deposit found in the liver. By the almost complete limitation of the deposit to the posterior portion of the intestine, the anterior portion of the canal had doubled upon itself, so that the peritoneal folds were in contact, in which position there were slight adhesions. It was in this latter situation that a rupture was made by Dr. Curtis while attempting to distend the stricture during the autopsy.

There were several interesting points in connection with this case, that related principally to the method of examination pursued:

I. Without this method of rectal exploration, Dr. Sands did not think that any one could have decided whether the stricture was in the large or the small intestine. Although it is well known that, as a rule, chronic obstructions were nearly always to be found in the large intestine, and acute obstructions were met with in the small intestines, still the rule has its exceptions. By the last examination he was enabled to decide the point of distention of the descending colon, and to tap it and get rid of the fæcal accumulation.

II. Such examinations, judging from the softness of the material composing the stricture, were necessarily attended with considerable risk. In fact, in this particular instance, taking into extra consideration the fact of an ulcerative process going on in the vicinity, which it was thought would soon have gone through the peritoneum, he was rather surprised that the examination, carefully made as it was, had not produced rupture and occasioned a fit of peritonitis. As it was, some of the longitudinal fibres of the rectum were separated at a place about eight inches from the anus.

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III. The examination enabled the operator to map out through the abdominal parietes, by pressure from within, the exact situation of the colon. The operation, although simple enough in principle, was not always easy of performance, and the rules laid down were not reliable in every case. By the method of rectal examination the situation of the incision was found to correspond to a small congenital nævus, which in this case was a convenient mark.

IV. The results of this examination also prove that it is hardly possible, without incurring great danger, to pass higher up than twelve inches. In this case the stricture was but fifteen inches from the anus, and yet it was impossible to touch it during the explorative procedure.

Dr. Janeway remarked that in those cases in which strictures followed chronic dysentery, there was particular liability to rupture by such examinations, as a large number of ulcers were apt to be in the immediate vicinity. In that connection he referred to a case in point, in which even an ordinary explorative examination, if it had been made during life, would have been attended by rupture.

Case 13. *Carcinoma of the Colon.*

By Dr. Lewis A. Stimson, December 12, 1876.

Dr. S. presented a tumor of the transverse colon, which had produced constriction and ultimately occlusion of the canal by the lodgment of foreign bodies within it.

The patient, a gentleman 63 years old, of full habit and general good health, had complained for some time of deep-seated pain in the right hypochondrium. Finding himself unable to empty his bowels, he called in his physician, who gave him laxatives and enemata; these proving ineffectual, and the patient's suffering increasing, a consultation was held; the diagnosis of mechanical obstruction was made, but operative interference, beyond the administration of full enemata, was rejected. The con-

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stipation persisted, and on the sixth day the patient died, quite suddenly, in collapse.

Autopsy.—On opening the abdomen, the convolutions of the small intestine were found arranged with the greatest regularity in parallel lines in the direction of the axis of the body; those belonging to the lowest part of the ileum lying in the right iliac fossa against the anterior abdominal wall. The peritoneum was injected and covered with a faint exudation, and about a tablespoonful of reddish serum was found in the peritoneal cavity. The cæcum and colon were distended as far down as the stricture, which occupied a point *in the transverse colon*, between the median line of the body and the cartilages of the right ribs. Beyond this point the colon was contracted and entirely empty.

On dividing the intestine and everting it like a glove-finger, the upper end of the stricture appeared as a rosette about three centimetres in diameter, slightly congested, with an eccentric lumen that would admit only the tip of the little finger, and occluded by three fragments of the endocarp and a pit of an apple. Just beyond the distal end of the stricture were two or three dark submucous collections, the remains probably of interstitial hemorrhages; but at neither end was there any sign of recent hemorrhage or ulceration.

When divided longitudinally, the stricture proved to be nearly one inch long; its canal was tortuous, three-fourths of its wall being formed by the projecting neoplasm; the remaining fourth by cicatricial tissue occupying the site of the mucous membrane.

Microscopical examination showed the tumor to be of the variety known as *cylindrical-celled carcinoma*, with an unusually abundant stroma and with firm fibrous prolongations into the sub-peritoneal fat.

Case 14. *Stricture of Intestine, and Conditions Interfering with Colotomy.*

By Dr. Erskine Mason, April 24, 1874.

Dr. M. exhibited a specimen, which, being one of colotomy, very appropriately followed the one of Dr. Sands. It was of interest,

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more particularly as showing an obstacle to the successful performance of the operation. The portions of the rectum and colon exhibited were removed from a man, aged 30, who had been a car-driver for thirteen years, and whose habits were, according to his own account, very dissipated. Four and a half years ago he had his first attack of diarrhœa, which came on suddenly in the night and without known cause. This condition continued up to the time of the patient's death, with the exception of intervals of a few days at a time, when he would suffer from constipation.

The patient had been under Dr. Mason's observation for the past two years, during which time he had been an inmate of several of the hospitals. During this period a stricture of the rectum developed itself, which was treated from time to time by dilatation with bougies. Towards the last he became quite weak, emaciated, and suffered considerably from cough. His sufferings eventually became so great that he was exceedingly anxious for an operation, and its performance was finally agreed to with reluctance.

At the time of the operation the abdomen was much distended, and in the right iliac region there was marked dulness, which was referred to impacted fæces. The incision was made upon the left side. When the fascia was opened and the colon reached, to Dr. Mason's surprise the intestine was immovable, and its walls very much thickened, and showed indentation on pressure. In view of these facts it was determined to abandon the operation. The wound healed kindly in a short space of time, but the patient sank and died from phthisis April 11th, twenty-eight days after the operation.

Autopsy.—The ascending and transverse colon were much distended, while the diseased portion of intestine was found enormously thickened and perfectly immovable by old adhesions, requiring for its isolation the use of the scalpel and scissors. The stricture was about three and a half inches in extent, and five lines in thickness. The lungs were extensively diseased, and the liver cirrhotic.

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CASE 15. *Stricture and Tumor of Intestine—Bright's Kidney, etc.*

BY DR. JOHN H. HINTON, June 14, 1876.

Dr. H. presented specimens consisting of the kidneys, with portions of intestine and omentum attached, which had been removed from the body of a man aged 61 years. One point of interest connected with these was the singular absence of symptoms during life pointing to the existence of the grave renal disease which was the immediate cause of death. The patient, although not robust, enjoyed a reasonable amount of health, and was able to attend to his business as a financier until three weeks before his death, when he began to complain of the effects of constipation; although he had been suffering from this latter condition during the greater part of last winter. When Dr. Hinton first saw him his attention was called to a tumor in the right iliac region, about the size of the fist, midway between the anterior spinous process of the ilium and the umbilicus. It was quite firm in consistence, irregular and nodular in outline, and freely movable. The dulness on percussion over this tumor was quite marked, and was in striking contrast to the tympanitic resonance above, occasioned by the accumulation of gas in the large intestine. This latter fact, together with the existence of the tumor in that locality, and the obstinate constipation, gave rise to the suspicion of an organic lesion of the colon. The character of this growth was merely surmised. The only prominent subjective symptoms were nausea, and pain at the seat of the tumor, colicky in character, and evidently due to the imprisonment of flatus. These distressing symptoms continued, and were only mitigated by opiate injections. There was no change in his symptoms until thirty-six hours before death, when suppression of urine occurred, with slight uræmic symptoms, not by any means well pronounced, the patient being perfectly rational until within three hours of his death. With the suppression there was a coincident cessation of nausea, apparently due to the anodyne effect of the uræmia. The suppression was almost complete, only six ounces of urine being drawn from the bladder during the last thirty-six hours. Death occurred quietly, without coma, and was due apparently more to the exhaustion than to the more direct influence of

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the kidney trouble. The advent of uræmia created the first suspicion of kidney disease, and it was not until then that the urine was examined. It was found albuminous, but not markedly so.

Autopsy.—There was no general peritonitis, but local peritonitis was found at the site of the tumor. Adhesions existed between the omentum and intestines, at the ileo-cæcal junction, and extended, although in a slight degree, to the peritoneum of the iliac fossa. The tumor itself was about the size of a fist, and consisted of a deposit in the substance of the external walls of the ileum. The mucous membrane was only slightly involved, there being but one or two small points of ulceration on its surface, with very limited softening of the submucous tissue. About two and a half inches of the circumference of the ileum were involved, producing a stricture capable of admitting merely the tip of the little finger, and presenting the appearance of an intestinal sphincter at that point. The growth was eccentric rather than concentric. The mesenteric glands were enlarged and infiltrated, and there were also nodules in the omentum. The kidneys showed evidences of old croupous nephritis, with the attendant surface depressions.

At the time of presentation there had been no microscopical examination of the tumor, although from its gross appearance it was evidently cancerous in character.

Case 16. By Dr. D. S. Conant, 1856.—There was strangulation of a knuckle of the ileum about four inches from the cæcum, enclosed and compressed by several ovarian tumors.

Résumé.—The *sex* is given in twelve cases only—eight males, and four females.

The *age*, in nine cases only; the males were respectively 30, 46, 61, 66, and 72 years old; the females, 45, 56, 62, and 63 years old; and one case was in a young man.

The *ileum* was involved in four cases; the ileum, cæcum and colon in one case; the *colon* in three cases; the transverse colon in three cases; the descending colon in two cases; the sigmoid flexure in two cases; and the rectum in one case.

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The majority of the cases arose from cancer in some of its forms; one case from coiling of the bowels, from old peritonitis.

NOTE ON STRICTURES OF THE INTESTINES.

Sometimes contraction of the bowels is produced by disease of the peritoneal surface alone. The redness of primary inflammation is apt to be found in bands along the bowels, which bands represent the spaces where the cylindrical forms of the intestines tend to leave intervals between the coils, so as to favor the lodgment of blood and other exudations there by a sort of suction. On these so-called "suction-bands," also, the exudation is first thrown out, while the more closely pressed surfaces have but little lymph between them. There may also be no exudation from the surface, but only into the substance of the peritoneum; and thus although no adhesions may be found, the membrane is thickened and of an opaque white color, and a firm band passes down over a portion of the bowel and constricts it.

Stenosis of the intestine may also be produced by hypertrophy of the muscular coat, by cicatrices, by new growths, by the pressure of tumors, by peritoneal adhesions, and by foreign bodies. Thus simple, tuberculous, syphilitic or cancerous ulceration may give rise to contraction of the bowel; or cicatries left by former ulcers, or by the sloughing and separation of an intussusception, may for years produce chronic intestinal misery, ending finally in fatal ileus.

NOTE ON INTERNAL STRANGULATIONS OF THE INTESTINES.

These may occur from a portion of the intestine being twisted on its own axis, especially in the ascending colon.

The mesentery may be twisted on itself into a cone, so that more or less of the bowel attached to its base may become twisted and strangulated around the mesentery. Or a coil of intestine may form the axis around which another portion of the bowel with its mesentery may be thrown, and compressed as flat as a ruler. Abnormal length of the mesentery predisposes to these occurrences, which are said by Wilks and Moxon to be most common in elderly males with senile lengthening of the mesocolon. A coil of bowel so twisted may dilate to an immense size.

A piece of intestine may get through the fissure of Winslow and become strangulated, or into an opening in the mesentery, or omentum, or into

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spaces included by bands of false membrane in various parts of the abdomen, or into similar spaces formed by a very long vermiform appendix, or intestinal diverticula.

Constricting bands, according to Rokitansky, are most common in females, from the effects of metritis or parametritis. It is not very uncommon, according to Jones and Sieveking, to find coils of the ileum attached in the pelvis, causing fatal strangulation. Portions of the bowel may lie in the orifices or circlets formed by these bands for a long time, producing indistinct symptoms for months or years, until the included portion of bowel becomes distended, when serious symptoms rapidly arise. Dr. Peacock has described two cases of mesocolic hernia in which the small intestines were contained in a sack formed by the layers of the mesocolon. In one there was strangulation, in the other none, although the ileum passed out of the sac over a thin crescentic ledge of the mesocolon.

Dr. Wilks calls attention to internal displacements and strangulations arising from disease during fœtal life. When the position of the parts is greatly altered, he thinks it is tolerably certain that the union occurred early. He has several times met with peritonitis in syphilitic infants. Extra-uterine adhesions may draw the colon down to the pelvis, or carry the sigmoid flexure upward; and these displaced portions may twist on themselves, or else form loops under which coils of the bowel may become strangulated.

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13.—DIVERTICULA OF THE COLON.

CASE 1. *Diverticula of Colon.—Hernia of the Mucous and Peritoneal Coats.—Death from Peritonitis.*

BY DR. ALFRED L. LOOMIS, 1869.

Dr. Loomis gave the following account of a very interesting specimen:

About eleven o'clock one evening, I was called to see a well-nourished Scotch gentleman, 61 years of age, who up to that time had enjoyed such good health as never to need a physician. He was of a very costive habit, and it was his custom once or twice a week to take two dinner-pills on going to bed. On the afternoon preceding the day I saw him he had taken his usual dinner down town at five o'clock, and had walked from his place of business in Vesey street to his home in Twenty second street immediately afterwards. Just before he reached his home he was seized with a severe pain in the lower part of his bowels; as he entered the house he vomited, and by the time he reached the second floor he had an evacuation. The pain increased in severity until I was called. He was sitting in a chair at the time; his temperature was normal, pulse eighty, full and regular; and there was nothing to attract my attention particularly, except an expression of pain upon his countenance. On examination I found that firm pressure upon the lower part of the abdomen, which was the seat of the pain, did not increase his uneasiness, nor did it relieve it. During the time I was making the examination, he vomited the food which he had just previously taken into his stomach. The abdominal muscles were not rigid; the abdomen was soft over the whole surface. I examined it carefully for evidences of peritonitis, and came to the conclusion that no peritonitis existed. I ordered the abdomen to be covered with warm fomentations, and ten drops of Magendie's solution administered, to be repeated in two hours in case the pain continued.

At five o'clock in the morning—six hours from the time I first

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saw him—I was called again, and found him in a state of collapse. The extremities were cold; pulse small and thready, and almost imperceptible; but intellection was perfect, and there was no vomiting. The respiration was hurried, and the pain, up to a short time before, had increased in severity. In about an hour afterwards he died.

Autopsy.—The heart was enlarged; its right side contained fluid blood. The aortic valves were calcified and slightly insufficient. The aorta was dilated, and in a state of atheromatous degeneration. The lungs were normal, with the exception of the left apex, which was the seat of an induration.

The peritoneal vessels were all injected; and scattered over the surface of the peritoneum were flakes of coagulable lymph, most abundant near the sigmoid flexure. The liver, stomach, and kidneys were normal, with the exception of small cysts in the latter. The small intestines were normal. On the sigmoid flexure and on the descending colon were diverticula, averaging three-quarters of an inch in diameter, standing out from the peritoneal surface. All these were carefully examined, and were found filled with fæcal matter. On dissection these diverticula seemed to be the results of hernias of the mucous membrane through the muscular coat of the intestine, the sacs being formed of peritoneum and mucous membrane alone. The most careful dissection of these sacs failed to find any openings in either of them. Their peritoneal surfaces were the seats of the greatest intensity of the inflammation, and seemed, in the absence of other more probable causes, to be the foci of the general peritonitis.

The specimen is interesting, first, on account of its rarity. I have looked somewhat into the literature of the subject, and this case is the first of the kind that I have been able to find on record. In the second place, the obscurity of the symptoms of peritonitis was a marked feature. Undoubtedly peritonitis existed when I first saw him, and yet his pulse was only 80.

NOTE.—According to Dr. Francis Delafield, *false* diverticula are formed by a hernial protrusion of the mucous and peritoneal coats. They form multiple, nipple-shaped pouches from the size of a pea to that of a walnut. They are usually on the convex side of the intestine, and may be found at all parts of the large and small bowels. They usually cause no symptoms during life, but may excite acute peritonitis.

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14.—STRICTURES AND CANCER OF THE RECTUM.

Case 1. *Stricture of the Rectum.—Lumbar-Colotomy.*

By Dr. Erskine Mason, Jan. 28, 1874.

Dr. M. presented a portion of the colon taken from a patient who had suffered for a long time with stricture of the rectum, and for the relief of which colotomy had been performed.

The patient was 76 years of age. Two and a half years before, he had suffered from a severe attack of dysentery, and six months after he recovered therefrom he was seized with a severe pain in the bowels, which recurred at intervals for months afterwards. During December of that year a severe hemorrhage occurred per rectum, and for weeks this also continued to recur when there was any straining at stool. From this time also the pain, which he located in the middle of the sacrum and down the thighs, continued to increase, and a difficulty in defecating showed itself.

Upon examining the patient, a tight annular stricture, with decided induration of the bowel, was discovered three and a half inches from the anus. There was some ulceration of the bowel below the stricture, and there was also a probability of the same condition existing above the constriction. The pains in the sacrum, of which he complained, were intense. His gait was very peculiar: he would straddle, and, partly stooping, would step lightly, as if he were carrying some heavy weight in the pelvis. The stricture admitted the tip of the little finger.

The treatment consisted in nourishing diet, and the gradual introduction of bougies. The latter he bore very well for a time, but the pain became intense, and hemorrhage began to occur whenever the stricture was touched. Sometimes these hemorrhages were so profuse that injections and suppositories containing persulphate of iron had to be employed. The stricture began to show a tendency for closing fast, and as the patient complained of severe lancinating pains all through the pelvis, the suspicion that the

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disease was cancerous was apparently well founded. On consultation it was concluded to perform lumbar-colotomy as the only means of relief. The operation of opening the colon on the *left* side was done on the 26th of June, 1872. The patient recovered very nicely, and was relieved of the different symptoms from which he had suffered for some months. At times, however, he would have a recurrence of the pain, which he now located across the diaphragm, and would also complain of dragging pains in the vicinity of the sacrum. These paroxysms would continue for a few days only at a time. As is usual after the operation of colotomy, the stricture began to yield, and the ulcers below it to heal. After a while, in the hope that the passage of fæcal matter per rectum might be made clear again, and the fistula healed, bougies were again passed, but the pain soon returned and their use had to be abandoned. An examination at this time showed little or no stricture. The idea of malignancy was then given up, and attention was directed to the possibility of the existence of another stricture higher up, probably in the vicinity of the transverse colon; this possibility was confirmed by the arrest of an œsophageal bougie after it had been passed for a short distance upward through the artificial opening.

When Dr. Mason again came on duty, in December, he found the patient in very much the same condition. The symptoms of rectal stricture having disappeared to a great degree, he made an attempt to heal the artificial opening in the hope that the fæces might escape *per vias naturales*. For this purpose a plug was placed over the opening and kept there for a time, during which there occurred one or two natural passages. The pain, however, became so excessive that the pad had to be removed. Just after this he began to suffer from difficult micturition and continued to grow weaker and weaker, and took to his bed, from which he never rose. Diarrhœa, which had commenced a little while before, gradually increased, and his urine had to be drawn off with the catheter. He died January 27th, having lived one year and seven months after the operation.

Autopsy.—On account of the extreme difficulty of obtaining a post-mortem, only a portion of the colon, including the rectum, and also the bladder, were removed *en masse* through a small opening in the abdominal walls. The small intestines were free,

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and there were no signs of peritonitis in the neighborhood of the operation; but on the right side there were old adhesions by which the caput coli was bound down; and higher up the same kind of bands caused the stricture in the transverse colon, which was recognized during life.

The bladder-walls were thickened and showed cystitis. The rectum presented few or no traces of ulceration, and little or no signs of stricture. Around the stricture, outside the gut, the tissues were considerably indented. Just above the stricture were to be seen marks of ulceration extending along the sigmoid flexure, and up to the point of the operation. The *transverse colon was constricted by bands*, as before stated, and in the vicinity of the caput coli there was a third stricture with its edges ulcerated. The surrounding mucous membrane was considerably thickened, and the neighboring mesenteric glands much enlarged. The mucous membrane of the colon was in several spots intensely congested.

Dr. Lente remarked that he had seen this case before the operation, when the stricture was very firm, and barely admitted the end of the finger. It was one of those cases which would have been diagnosticated cancerous without any hesitation. He asked, in view of the attenuated and contracted condition of the intestine, if it would not be vain to expect that the rectum could ever again take on its legitimate function.

Dr. Mason replied he thought it was worthy a trial, although he was not aware that any such attempt had been successful.

Dr. Sell remarked that Dr. Wood, of London, had succeeded in one such case.

Case 2. *Cancer and Stricture of Rectum.*

By Dr. Joseph C. Hutchinson, Jan. 12, 1870.

Dr. H. exhibited a specimen of stricture of the rectum, from a lady 35 years of age. For the previous eight months she had suffered from considerable distress in the lower bowel, manifested by pretty constant tenesmus and a discharge of a sanious fluid per anum. Otherwise she appeared to be in excellent health. An examination was made per rectum, when a narrow rim of deposit was dis-

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covered on the left half of the intestine, about three inches from the anus. On the right side of the bowel and behind it, apparently in the subcellular tissue, another mass was discovered of the same consistency. No hereditary predisposition to cancer was discoverable, neither had there been any attack of dysentery or other inflammation of the gut. There was also no reason to suspect syphilis. The diagnosis of malignant disease was made, and she was informed accordingly. Some two or three weeks subsequently she consulted Dr. Van Buren, who found that the disease then extended entirely around the rectum. Some four weeks after his first examination Dr. H. made a second, when he found the whole circumference of the bowel involved. So close had become the stricture, that it was impossible to crowd the finger through it. At that time, as she had had no evacuation for seven days, he began to dilate the stricture with a No. 12 urethral sound, and went on increasing the size of the bougie until the largest was reached. This was not followed by any considerable discharge of fæcal matter, but she suffered a great deal from pain, and indeed experienced no relief whatever; and was not examined again until after her death, which took place five weeks after the last examination, during which time nothing passed her bowels. She was kept comfortable by opium.

Autopsy.—On opening the thorax two yellowish white spots on the lower portion of the right lung were found, presenting the aspect of medullary cancer. There was also a smaller nodule in the lower lobe of the left lung; otherwise the two organs were entirely healthy. The colon was distended with fæcal matter from three inches above the caput coli to the point of stricture; the greatest accumulation being at the junction of the ascending and transverse colon, at which point there were numerous adhesions to surrounding parts. The stricture, three inches above the anus, extended upward involving about two and a half inches above in breadth; and was so close that water could only pass through very slowly, by drops. There were some deposits over the bladder, some in the liver, spleen, and right kidney, which was considerably larger than the left. The pancreas and stomach and uterus were normal.

In conclusion, he stated that the operations for excision of the rectum and lumbar colotomy were respectively discussed, but it was deemed inexpedient to employ either—a decision well borne out by the autopsy.

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Dr. Detmold asked if primary cancer of the rectum in a female was not exceedingly rare? He had never seen or heard of one.

Dr. Bibbins recollected one in Bellevue Hospital, which, on account of its rarity, excited a great deal of attention.

Dr. Rogers had in mind another case of so-called primary cancer of the rectum in a female, which had been extensively advertised by the Missisquoi Spring proprietor as having been cured.

Dr. Van Gieson referred to a case of cancer in the rectum, in New Brunswick, N. J., for which colotomy had been performed by Dr. Morrough of that place. The patient died six days after.

Dr. Detmold did not believe the operation was ordinarily justifiable, although in some cases life might be lengthened by it.

Dr. Hutchinson referred to one case reported by Mr. Curling, in which that gentleman supposed life had been prolonged by it seventeen months.

CASE 3. *Chancroidal Ulceration of the Colon, Sigmoid Flexure, and Rectum, and Stricture of the Rectum treated by Lumbar Colotomy.*

BY DR. HORATIO BRIDGE, January 24, 1877.

Dr. Horatio Bridge presented parts of the large bowel from a patient who died January 10, 1877, of Bright's disease.

Autopsy.—The mucous membrane of the anus and of the rectum, as high as four inches above the internal sphincter, was entirely deficient. About the anus were numerous pit-like depressions, which marked the seat of former ulcerations. At the part corresponding to the top of the internal sphincter, where in life existed a marked stricture, the substitution of fibrous tissue for mucous membrane was most marked, but the calibre of the bowel at this point seemed nearly, if not quite, normal. Above this, for about three inches, the interior surface of the rectum was mammilated, rough, and hard.

The parietes of the rectum were greatly thickened by the interposition of fibrous tissue and by hypertrophy of the muscular coats. In the sigmoid flexure and lower part of the descending colon were

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two ulcerations about an inch in diameter, nearly round in shape, penetrating through the mucous membrane, and with soft bases and edges. Both in the sigmoid flexure and in the descending colon were clearly marked, star-shaped and linear *cicatrices*, both large and small. One of these cicatrices, at about the middle point of the descending colon, had perceptibly *diminished the calibre of the bowel by contraction.*

In the cæcum and ascending colon neither ulcerations nor cicatrices were found. There was nothing remarkable about the artificial anus, with the exception of a protrusion of the mucous membrane and a superficial ulceration of the same. The transverse colon was not removed.

HISTORY.—The patient suffered with extensive rectal disease, and illustrated some of the important points in the history and treatment of venereal ulceration and stricture of the rectum.

Annie F. M., 38 years of age, inherited a good constitution, and until within five years, enjoyed excellent health. About five years ago she contracted venereal disease. Two large, profusely suppurating, painful sores appeared in the vagina, a day or two after exposure; were pronounced chancres and cauterized; two weeks later they were healed. One month later she complained of an affection of the rectum, characterized by protrusion of mucous membrane from the anus, of pain in that region on sitting, and at stool, when loss of blood also occurred. These symptoms continued for about a year without treatment, but the patient was not confined to her bed, nor prevented from leading the life of a woman of the town.

February, 1874. About the anus were a number of flat, pigmented, nipple-like, fleshy protuberances; at the edge of the anus, extending up into the same, were four or five deep fissures, which on dilatation of the sphincter were found to be large non-indurated ulcerations, with deep, dusky red surfaces showing no indications of a reparative process. An inch above the anus the mucous membrane was wholly wanting, and in its place a continuously ulcerated, freely suppurating, grayish surface. At the top of the internal sphincter ani was a stricture about three-fourths of an inch in diameter. The patient was markedly reduced in flesh and strength, and suffered greatly from pain referred to regions corresponding to the rectum, sigmoid flexure, and descending colon. She complained of

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alternating constipation and diarrhœa. From time to time, at intervals of from one to two weeks, there occurred elevation of the pulse and temperature, accompanied by increased pain and tenderness in the supra-pubic, left iliac, and lumbar regions; continuing for three or four days, and subsiding with the discharge per anum of a large amount of pus tinged with blood.

The patient had already undergone anti-syphilitic treatment, and subsequently, under my own care, was brought fully under the influence of mercury and iodide of potassium, without improvement in the ano-rectal disease. Various astringent and disinfecting injections were persistently used by my predecessor and myself, without satisfactory results. Dilatation of the sphincter was thrice resorted to without good result. The diet was for weeks carefully regulated, with the view to reduce to a minimum the irritation from the passage of waste matter, without satisfactory results.

On the 15th of July, 1874, lumbar colotomy was performed, with the aid and advice of Drs. Bumstead and Mason. The operation proved successful; the fæces were passed almost exclusively by the artificial anus; the abdominal pains, previously so severe, ceased almost entirely. The periodical fever and discharge of pus, before so remarkable, ceased entirely. The ulcerations in the rectum took on a healthy condition, and gradually healed.

A year subsequent to the operation the condition of the patient was as follows: The fissures at the margin of the anus had entirely healed; at the top of the internal sphincter ani was a valvular stricture, which did not permit the passage of the forefinger. No signs or symptoms of ulceration above the stricture could be made out. The injections passed through the artificial anus by the patient herself were discharged at the natural anus free from admixture with pus. The general health of the patient was so good that she was enabled to be up and about, and to engage in light work.

Subsequently, until the time of her death, the patient was several times obliged to resort to different hospitals for treatment, in consequence of excesses in drink.

The case, illustrated as it is by the post-mortem evidences of the cure of chancroidal ulcerations, seems of value in showing the effect of lumbar colotomy, to which, as the history clearly shows, the cure was due, after other means had been faithfully tried without success.

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Dr. Briddon referred to a case in point. It first came under his observation six months ago. The stricture was annular in character and tight. Dilatation was resorted to, but without avail; rectotomy was performed, and finally, six weeks ago, lumbo-colotomy was tried. Four weeks subsequent to the latter operation he had occasion to examine the patient on account of the presence of rectal pain, when he was surprised to find the stricture almost entirely gone.

Dr. Janeway stated that cases not infrequently occurred, which during life presented tight strictures, but in which, at the autopsy, it was very difficult to find them. This was accounted for, in part, by the absence of reflex muscular contraction, and in part from the destruction of the peri-rectal tissue during the necessary dissection for the removal of the gut. In Dr. Bridge's case, he was inclined to think that the ulceration above the stricture was due to the irritating presence of accumulated fæces rather than to chancroid.

NOTE ON SYPHILITIC AFFECTIONS OF THE INTESTINES.

Syphilis, according to Jones and Sieveking, very rarely affects any part of the bowels except the *rectum*, where two forms of the disease are met with, viz., ulceration and stricture.

Syphilitic ulcerations much resemble dysenteric ulcers, but are distinguished partly by their more uniform and level ulceration, partly by their situation, which is near the anus, and not in the upper part of the rectum or sigmoid flexure. They may be primary, or begin as condylomatous or gummatous growths. The fibrous scars of these ulcers give rise to formidable strictures of the rectum.

Wilks and Moxon say: "In *women* the rectum is sometimes found ulcerated, at the lowest part, for a space of several inches, running up, at times, into the sigmoid flexure, and appearing to depend on extension of inflammation along the perinæum, in the *primary* stage of syphilis. The interior of the bowels may be frightfully destroyed, and there may be recto-vesical fistula. The ulceration may pass in and out behind the mucous membrane, and even deeper, so as to convert the wall of the bowel into a mass which somewhat resembles the apex of the right ventricle of the heart, from the number of fleshy columns that cross it. Such ulcerations of the rectum do not occur in males.

Ulcers of other parts of the intestine have been found in new-born children affected with hereditary syphilis, and in a few cases in adults. Klebs

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describes a case of an undoubtedly syphilitic man, in whom were found some considerable ulcers near the ileo-cæcal valve and lower part of the ileum, almost surrounding the intestine in a ring; while numerous small ulcers were present in other parts. They had a firm, fibrous base, and their edges were beset with villous projections.

Dr. Delafield says: Syphilitic ulcers are found in the rectum as extensions of chancres of the vulvar-perineum. They may lead to induration and stenosis of the rectum.

Case 4. *Lumbar Colotomy for Cancer of Rectum.*

By Dr. Erskine Mason, Sept. 21, 1871.

Dr. M. presented a portion of the rectum and colon from a patient upon whom the operation for lumbar colotomy was performed for the relief of cancer. She was 64 years old, and had given birth to fourteen children, ten of whom are alive and well. There was no hereditary taint of cancer in any branch of her ancestry, and she had always enjoyed good health until four years ago, when she commenced to suffer from general debility. About five years ago she began to feel pain on defecation, and this increased to such an extent as to bring on a voluntary and obstinate constipation. On the 8th of last May she was extremely feeble, and her sufferings were frightful. For some days she would have no movement whatever; then this condition would alternate with diarrhœa and bloody discharges, accompanied by bearing-down pains. On examination a tight stricture was discovered about two inches from the anus, and this, with the whole recto-vaginal wall, was infiltrated with a cancerous mass, as well as the neck and posterior portion of the fundus uteri. There was a small recto-vaginal fistula high up. Lumbar colotomy was advised, with a view of affording temporary relief and of prolonging life, and was performed May 27th. She bore the operation remarkably well, and rapidly recovered from its effects. Her distressing bearing-down pains and constipation were much relieved, and she was in a condition, temporarily at least, to make life tolerable. During the summer months the disease reappeared, and she died on the 27th of August, just three months after the operation.

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Autopsy.—All the organs of the pelvis were matted together in one cancerous mass, not excepting the bones and muscles. At a point midway between the promontory of the sacrum and the anus, the rectum had entirely disappeared.

Case 5. By Dr. Erskine Mason, 1871.

Dr. Mason presented a specimen illustrative of one of the effects of lumbar colotomy. The patient, a woman 39 years of age, had suffered from venereal stricture of the rectum for two years. He discovered a very tight annular stricture one inch above the anus, which he attempted to dilate with bougies, but failing to accomplish much, he divided it with Cooper's hernia-knife. After this he dilated with his finger, then passed a bougie, but met with a resistance which on examination proved to be another stricture an inch higher, and spiral in form, extending a distance of two inches. This was notched with the knife and then dilated rapidly with bougies until the largest could be passed with facility. This relieved her condition very much. Bougies were introduced at intervals of four days, and the diarrhœa and pain, from which she had suffered, abated.

For some uterine disturbance, she was transferred to the medical wards, and the use of the bougies was discontinued, and after the lapse of a month the constriction returned. She came again in Dr. Mason's hands, and rupture was resorted to for a second time. Last March she was suffering agony; the stricture had returned, and just allowed the introduction of the end of the index finger. The rectum for a distance of four inches was ulcerated. Lumbar colotomy was advised as a last resort. She was a very intelligent woman, and having been a medical student, was well informed in regard to the operation, fully acquainted with the necessary steps of the same, and, in fact, urged its performance. In the following April, Dr. Mason again came on duty, and her condition was no better. She had been taking large quantities of opium, and that, together with the pain, began to tell upon her nervous system. She had suffered considerably from profuse diarrhœa, but this was afterwards checked.

The operation for lumbar colotomy was performed May 8th, after

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Amussat's plan. She was placed under ether. Two or three quarts of water were thrown up the rectum, and a tampon introduced to prevent regurgitation. A pillow was then placed under the right side. The rules for finding the colon, as laid down by Mr. Allingham in St. Thomas's Hospital Reports, were strictly observed. It will be recollected that he has described the results of a large number of experiments upon the cadaver to prove the accuracy of his plan. He takes two points: the anterior superior and the post-superior spinous processes of the ilium; then, about midway between the two, but half an inch posterior, he makes an incision, and expects to come down directly upon the colon. Before operating, Dr. Mason verified the procedure in three or four cases upon the cadaver; and also in two or three instances since the death of the patient. The woman was very well developed, and there was considerable adipose tissue to divide. After cutting through the quadratus lumborum muscle he came down upon the lumbar fascia, directly underneath which was a portion of intestine, very much distended. When the fascia was divided, the characteristic greenish hue of intestine was plainly recognized. The bowel was carefully examined, and Drs. Wood and Watts, who assisted, thought with Dr. Mason that they recognized some of the longitudinal bands of the colon. Having made out these points to their satisfaction, Dr. Mason introduced two sutures, one above and one below, and drew the intestine up into the wound. The bowel was then divided longitudinally, for the distance of, perhaps, half an inch, when, to their great gratification, out gushed a fluid which was believed to be the injection previously administered. This being done, the edges of the gut were stitched to the wound. The patient went on very well until the following Thursday (May 11th), when she complained suddenly of a pain in the back, which continued more or less until Friday 3 P.M., when Dr. M. saw her. To his surprise he found her with an anxious expression of countenance, hands, arms, and face quite cold, respiration thoracic and very rapid. He at once concluded that pus from the wound had made its way into the peritoneal cavity. The sutures were accordingly removed, but the wound was found to be firmly united throughout the whole of its extent. Two teaspoonfuls of pus were then evacuated, affording the patient much relief. The wound was erysipelatous. He saw her again at 9 P.M., when she was passing rapidly into a comatose condition. The erysipelas had

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extended along the back, and the edges of the wound presented the appearance of commencing hospital gangrene. She died two hours afterwards—four days and eleven hours after the operation. During the last five hours of her life she had complete suppression of urine.

Autopsy.—Rigor mortis almost wanting. Skin slightly jaundiced. Edges of wound everted and presenting a gangrenous appearance. Blood throughout the body black and fluid. No general peritonitis was found, but the abdominal cavity contained three ounces of bloody serum. The peritoneum covering the spleen was adherent to the diaphragm by old adhesions. The lower end of the great omentum was bound down, in the pelvic cavity, by old adhesions to the uterus, thus pulling down the transverse colon and its splenic flexion—the latter towards the median line, so that its course lay over the anterior border of the kidney. The descending colon, instead of occupying its normal position, lay over the hilus of the kidney and outer border of the psoas muscle, and was empty and contracted. There was a clean transverse opening through the peritoneum half an inch above the crest of the ilium, one inch and a half in length; through this opening a knuckle of the jejunum had passed, and had been stitched to the skin on either side of an opening corresponding to the inner one. This portion of jejunum was eight inches from the duodenum. The peritoneum covering this portion of the intestine for four inches upward and eight inches downward presented evidences of recent inflammation. These portions of intestine had become adherent to one another and to the peritoneal opening, so as to close the latter. The mucous membrane of the jejunum at the artificial opening was simply congested. There was no evidence of peritonitis around the opening. The ascending portion of the duodenum was adherent to the gall-bladder by old adhesions. The uterus was adherent to the rectum, closing Douglas's cul-de-sac. She evidently at some time had had puerperal peritonitis. Microscopical examination of kidneys showed blood effused in a few Malpighian bodies. The latter were granular; in some, their capsules were thickened. In the convoluted tubes the epithelium was granular, increased in size, nearly filling the tubes, but intact. Straight tubes; epithelium detached, showing in some places the tubes almost entirely denuded. The stroma showed increase of connective tissue, with some free oil-

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globules. The liver structure showed the liver-cells large, granular, and fatty.

The points of interest in the case were summed up as follow:

1. The false position of the jejunum, so enormously distended; and the appearance of a knuckle of it in the wound.
2. The abnormal position of the colon.
3. Absence of peritonitis immediately around the wound; and—
4. The relief of rectal pain after the operation.

Dr. Janeway thought that in a similar case a diagnosis might be made by examining the fluid contents of the gut chemically for biliary acids.

Case 6. *Perforation of the Rectum by a Bougie.*

By Dr. H. B. Sands, 1870.

Dr. Sands presented a specimen of melancholy interest, from the fact that the intestine was perforated in an attempt to dilate a stricture of the rectum. The patient, a gentleman past the age of 45, consulted him two years ago with a stricture of the rectum, from which he had suffered for three years. A year before he came under notice he had been under the care of another surgeon, who, after dividing the sphincter ani, dismissed him as cured. Failing to find the relief which he expected, he consulted Dr. Thomas, who recognized the difficulty, and sent the patient to Dr. Sands. The latter gentleman found a very tight and obstinate stricture about three inches from the anal orifice. It was only after two weeks had elapsed that an ordinary olive-pointed urethral bougie could be passed. Larger ones were used after a time, and these gave place to rectal bougies, and finally one was constructed of gutta-percha, ten inches in length, with the curve corresponding to that of the intestine, having an olive point, stiffened by a watch-spring. This was introduced, on an average, twice or three times a week. During his absence from town, Dr. Sands intrusted the case to the care of a medical friend, who, however, was not in the habit of introducing it as he had done—its whole length. On one occasion the patient became aware that it was not inserted as far

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as he had been accustomed to have it, and informed the attendant of the fact. He became so importunate that the instrument was passed its full length. No difficulty was encountered, and no undue force was used. Immediately after it was withdrawn, and before the patient left the house, he complained of pain in the lower part of his bowels. As this was not an unusual occurrence, no special attention was given to it, and he was simply advised to take a little laudanum. He jumped into a stage and rode down town, but soon began to feel very badly, and was seized with a rigor. He then returned home and immediately sent for the physician, who saw him the same day, Thursday, and on Friday Dr. Markoe was called in consultation, and it was not until Saturday evening following—forty-eight hours after the accident—that Dr. Sands visited him. It was then evident that peritonitis existed; the diagnosis of perforation of the rectum was made, and death occurred on the following morning at four o'clock.

Autopsy.—On examining the rectum, the stricture was found to be five inches in length, and caused by a condensation of the tissues of the gut at that point. As had been previously diagnosticated, no cancerous disease was found. About ten inches from the anus there was a perforation through healthy tissue, and corresponding in size to that of the point of the instrument. There was an ancient adhesion of the peritoneal surfaces of the sigmoid flexure, in such a way as to render the angle at that point very acute. This inflammation was thought to have been caused at one time when the passage of the instrument by Dr. Sands had been attended with very sharp abdominal pains. After this he had used the instrument with more caution. It was very evident, taking this view of the case, that while the whole length of the instrument could be passed previously without danger, after the adhesion occurred it was very easy to produce a perforation.

CASE 7. By DR. BENJAMIN MCCREADY, 1857.—Cancer of the rectum in a woman æt. 71, who had signs of chronic dysentery for two years, viz.: frequent mucoid stools, more or less tinged with blood; but little feculent matter; tenesmus and pains; her general health was passably good. A hard, cartilaginous ring was discovered

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just beyond the sphincter, and several ovoid tumors the size of hazel-nuts. Eighteen months ago emaciation, debility, and sallowness set in, followed by passage of fæces and flatus from the vagina.

Autopsy.—Recent peritonitis; the liver was enlarged, with numerous cancerous tumors, some almost diffluent. The rectum terminated in a kind of cloaca, including the upper part of the vagina, with thickened walls. The stricture had entirely disappeared; no cancer was discovered in the walls of the cavity, which were composed of fibrous tissue. The cancerous mass had disappeared by ulceration, and developed secondarily in the liver. The walls of the rectum were not cancerous, but there was abundant evidence of cancer in the liver.

Case 8. By Dr. James R. Wood, 1861.—There was cancerous disease of the rectum in a lady æt. 40, who had had pain, sometimes excessive, for seven years, in the right sacro-iliac synchondrosis, and also at the point of the coccyx; also constipation, with much pain during the evacuations. A point of constriction could be reached by the finger in the rectum, but there was no abnormal discharge for a long time. She improved under iron and iodine, when a little puffiness was found over the sacro-iliac junction, which increased, and with it the difficulty in defecation. Finally, a tumor of the size of half a goose-egg appeared on the sacro-iliac symphysis, with fluctuation and much offensive discharge from the rectum. Death occurred from exhaustion.

Autopsy.—No pus was found in the tumor, which was cancerous. There was also cancer of the adjacent soft and bony structures. The viscera, too, of the pelvis were agglutinated by malignant deposit. The disease probably commenced in the bone, and extended to the rectum and other parts. The case was interesting from its long duration.

Case 9. *Epithelioma of the Rectum.*

Dr. Voss, January 10, 1866.

A woman, æt. 32, descended from healthy parents, was in good health until the summer of 1864, when she had an attack of dysen-

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tery, from which she recovered. Nine months before her death the symptoms of malignant disease of the rectum commenced. About three-fourths of an inch above the anus was an ulcer, with indurated edges, involving the entire circumference of the rectum. There was no stricture. The diseased portion of rectum was drawn down, cut off, and the cut edges united by sutures. The patient died six and a half days after the operation, with symptoms of peritonitis.

CASE 10. By DR. GUSTAVUS A. SABINE, 1847.—The patient had pain, emaciation, scanty urine, ascites, finally excessive vomiting, and died.

Autopsy.—The intestines were scirrhous, also the stomach, ductus communis, gall-bladder, and a part of the pancreas. The bowels were so much contracted, by deposit in the cellular tissue, that they could all be held in one hand. The rectum was very much contracted, so as to admit the little finger only through a stricture three inches above anus. The fundus uteri, ovaries, and Fallopian tubes were scirrhous throughout. There were several small cancerous tubercles in the heart, which was atrophied, as is common in scirrhus.

CASE 11. By DR. WILLARD PARKER, 1852.—The rectum was found strictured in a lady æt. 56, who had always been well previously, but had no movement of bowels for several weeks prior to death.

Autopsy.—The abdomen was much enlarged, but there had been no tenderness of it. The colon was distended to the size of a man's thigh, and filled with healthy fæces. A stricture of the rectum, with a small cancerous tumor of the size of a filbert, was found.

CASE 12. By DR. THOMAS M. MARKOE, 1850.—There was stricture of the rectum from the cicatrization of dysenteric ulcers.

CASE 13. By DR. BENJAMIN MCCREADY, 1850.—There was stricture of the rectum from old cicatrices. Also adhesion of the uterus, Fallopian tubes, ileum, and rectum.

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CASE 14. By DR. EDMUND R. PEASLEE, 1851.—Had seen three cases of stricture of the rectum, following the opening of pelvic abscesses into the rectum. In one case a No. 7 catheter could not be passed; but, by aid of free division with a bistoury, at the end of two weeks an inch bougie could be passed. The stricture was situated four inches above the anus.

CASE 15. By DR. JAMES R. WOOD, 1852.—Dr. W. reported two cases of stricture of the rectum connected with typhlitis, cured by dividing the sphincter on either side, bringing down the stricture and opening it with a crucial incision.

CASE 16. By DR. LEWIS A. SAYRE, 1852.—Dr. S. reported a case of stricture of the rectum after syphilis and dysentery, followed by an ulcerated perforation in the sigmoid flexure of colon, and effusion into the abdomen of an immense quantity of softened fæces.

CASE 17. By DR. JOSEPH C. HUTCHISON, 1857.—There was an irregularly rounded, dark concretion in the rectum, about one and a half inches in diameter, and situated about seven inches above the anus. It was composed of a hard crust filled with softer material having a fæcal odor, and composed of vegetable cells, striped muscular fibre, and oil-globules.

CASE 18. *Extirpation of the Rectum.*

BY DR. CHARLES K. BRIDDON, Nov. 2, 1876.

Dr. Briddon presented a specimen of extirpated rectum, with the following history:

Eliza Walker, aged 45; mulatto; single; housekeeper. Admitted to hospital service of Dr. Briddon. Mother died of consumption at the age of 35; is the only child left of nine. Denies venereal. Has been a moderately temperate woman. With very slight exceptions, had been perfectly healthy up to three years ago, when she commenced to have some pain in the small of her back; but as she was not otherwise troubled, she

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thought nothing of it. Last September she noticed a small, very painful growth near the anus, which continued to increase until it attained the size of a half-dollar; she complained also of a continual burning sensation in the rectum, pain in defecation, and frequent desire to urinate. Bowels at no time constipated; blood frequently discharged with stools; considerable tenesmus. About six weeks before admission the outside growth, the nature of which is unknown, was removed.

On admission, August 11, 1876, patient's general health appeared to be good. Thinks she has lost some flesh during the last six months. No cough; appetite good; tongue clean; heart and lungs healthy. Uterus somewhat enlarged (sound passing to a depth of three inches) but freely movable. Through the posterior wall of the vagina a slightly indurated and irregular mass could be felt in the rectum. Upon rectal examination, a slightly prominent, somewhat nodular growth was felt completely surrounding the gut and extending from a short distance above the external sphincter upward, about one and a half inches. The upper margin could be easily reached with the index finger and was quite abrupt in outline. The rectum was freely movable, showing that the surrounding connective tissue was uninvolved. The calibre of the rectum was reduced but little.

September 12th.—The mass above described is noticeably larger, and has extended in an upward direction to the extent of nearly an inch; reaching above the internal sphincter about two and a half inches. Rectum still movable, and the growth confined to the walls of the gut.

November 17th.—In addition to above-noted points, an enlarged lymphatic gland was found to the left, and just above the morbid mass.

Operation was performed November 20th. With the object of preserving the external sphincter, the anal perineum was split up by an incision, reaching from immediately behind the fourchette to the point of the coccyx; the anterior and posterior divisions of this incision were united by carrying the knife along the mucous membrane about one-quarter inch above the anal aperture; loops were then passed through the skin-flaps on either side and through the end of the gut; the insertions of the levator were divided by the knife, which was then laid aside, and the deeper connections

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were severed by the fingers, aided by the handle of the scalpel and the blunt-pointed scissors. This separation was tedious and difficult; it was easy to separate the wall of the vagina from that of the rectum as high as the point where the peritoneum is reflected from one to the other; but the posterior connections, high up in the concavity of the sacrum, were unyielding, and it was only after considerable traction that the sound intestine at that point could be brought down level with the perineum; as soon as this was accomplished the gut was partially divided in front and attached by suture to the surrounding skin. Further division was made a little at a time, securing bleeding vessels, and uniting the gut to the adjacent skin, until the whole was fixed in position by nearly a dozen sutures.

The free surface of the growth was somewhat nodular, grayish-pink in color, with points of ulceration, and slight hemorrhages here and there. Upon section the morbid process was found to involve chiefly the mucous membrane, which was much thickened and of purplish color. The muscular coat was considerably hypertrophied, particularly posteriorly. The connective tissue surrounding the rectum was perfectly normal in appearance, but in it was found the enlarged lymphatic gland previously felt upon rectal examination. This gland was the size of a large pea and yellowish white in color, and upon section was found to be in a state of cheesy degeneration. A microscopic examination revealed a predominance of cylindrical epithelium, with a marked tendency to the formation of tubuli. The connective tissue was considerably infiltrated with small round cells. The lymphatic gland contained chiefly fatty detritus and tablet of cholesterine.

Diagnosis.—Cylindrical epithelial cancer.

Case 19. *Results of Extirpation of the Rectum.*

By Dr. Charles K. Briddon, March 14, 1877.

Dr. Briddon presented a specimen of extirpated rectum. He remarked that in November, 1876, he had exhibited to the Society a portion of rectum extirpated for cancer. It had been removed

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from a woman in the hospital department of the Colored Home. The disease commenced immediately above the internal sphincter, and extended two and a half inches up the gut, terminating in that portion upon which the peritoneum was reflected. The patient did very well after the operation, but finally succumbed from thoracic disease. He had expressed the opinion some time ago that there was a return of the disease in the cicatricial tissue, between the margin of the perineum and the contracted end of the rectum; but the specimen now presented, which had been removed two or three days before the meeting, exhibited but little trace of disease in that precise locality, yet showed that it had extended to some of the glands above. The distance from the cicatrix to the retracted rectum was one and a half inches.

Autopsy.—He then read the history of the *autopsy*, for which he was indebted to Dr. Wm. Kelley, house physician:

Eliza Walker. Rigor mortis marked. Body markedly œdematous; not very well nourished. The right pleural sac was about two-thirds filled with a serous fluid. The diaphragmatic, costal, and visceral portions of both pleurse were studded with tuberculous deposits—the right more so than the left. The left pleural cavity contained a small amount of fluid. Right lung was very much compressed, and in a state of carnification; numerous tuberculous deposits were found scattered throughout. The left lung was of normal size, but contained in its apex a patch of catarrhal pneumonia undergoing cheesy degeneration; and at the centre of this a small cavity existed. In addition to a number of similar spots of small size, numerous tuberculous deposits were found. Heart normal. Spleen somewhat diminished in size, otherwise healthy. Liver smaller than normal; was very soft, and the seat of extensive fatty degeneration; a grayish-white mass, about as large as a goose-egg, and a number of smaller growths, probably *gummy* tumors, were found in it. The largest one was softened, and had undergone cheesy degeneration; the others were quite firm; no secondary cancerous deposits could be detected in the liver. The kidneys were lobulated; otherwise healthy. The pelvic viscera were removed and examined. Bladder healthy. Uterus and appendages normal. Some slight peritoneal adhesions existed in Douglas's cul-de-sac.

From the anus to the lowest portion of the intestine (a distance

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of one and one-half inches) a pseudo-mucous membrane had formed, but no return of the morbid growth (removed on November 20, 1876) could be detected. At the junction of the intestine with the pseudo-mucous membrane a slight constriction existed.

In the cellular tissue adjoining the upper posterior portion of the false mucous membrane, a few enlarged lymphatic glands were found. A fistulous communication existed between the rectum and the vagina at the posterior commissure.

Dr. Mason asked how much control the patient had over the movements of her bowels.

Dr. Briddon answered that after the morphine was diminished she had a diarrhœa for several weeks, since which time she would be compelled to evacuate her bowels as soon as the desire to do so manifested itself.

CASE 20. *Multiple Fibrous Stricture of the Rectum, with Autopsy.*

BY DR. FREDERICK D. LENTE, June 26, 1873.

Dr. F. D. Lente, of Cold Spring, presented a specimen with the following history: Mrs. S., aged 32 years, of strumous habit, but in fair flesh, applied to me through her physician, Dr. House, of Haverstraw, for advice regarding a long-standing disease of the rectum. She has never been very strong since she was a girl. Her catamenia have always been regular. Has had children. The first symptoms of her present trouble showed themselves about eight years ago. She consulted a physician at that time, but, as usual in such cases, nothing was done. Has consulted, first and last, nine different physicians and surgeons in New York and Brooklyn —the last of whom advised her to continue the treatment which she had been using at times for the past two years, namely, the introduction of bougies. She had never used one larger than a No. 11 urethral bougie. Notwithstanding their small size, the introduction was painful, and the distress continued for about fifteen minutes after their withdrawal. About five years ago noticed a purulent discharge, which increased for three years, and has re-

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mained profuse ever since. It passed away in gushes and unconsciously, sometimes falling in quite a puddle on the floor. She had usually one evacuation daily, which was generally figured, though very small and always flattened; but had to strain some fifteen minutes. She was in the habit of using an injection of water, or mucilage, or some application which is supposed to have a soothing effect; but they all gave more or less pain. The evacuations were accompanied by a discharge of blood and matter. Two recto-vaginal fistulas were discovered which caused an increase of the soreness in the rectum, and allowed the passage of pus and gas.

Middle of April, 1873.—On examination, I found a stricture at the upper border of the internal sphincter, but so much irritability both of the anus and the stricture as to render an anæsthetic imperative. Under ether I passed the index finger, with some difficulty, through the first stricture, and encountered another about three and one-half inches from the anus, admitting the finger to the first joint; there were no irregularities or nodules. On examination, by means of Sims's speculum, the stricture and the surrounding membrane had a vascular, erectile appearance, and there was pretty free arterial oozing. Passed a very small-sized flexible, conical, rectal bougie through these two strictures without much difficulty. Advised injections of a solution of carbolic acid, commencing with gr. xv. to the pint, about four ounces each time.

May 14.—Saw patient to-day with Dr. House. Better in every respect. Much less discharge since she commenced the injections, the strength of which has been increased to ʒ ss. to the pint. It is remarkable that they always caused a feeling of relief, the reverse of what she has experienced from any other. She has not been able to use the rectal bougie, but uses a No. 15 olive-pointed flexible urethral instrument, which is considerably larger than the one she has heretofore employed. It was intended that the acid should be washed out, after a few minutes, by a larger enema of warm water; but she never passes it, and it has no unpleasant constitutional effect in any way. On examination, find that there is very much less irritability of the rectum, so that I am able to pass the rectal bougie easily through the strictures without ether; but, on approaching the upper part of the rectum, there is more resistance, and pain is complained of; both these symptons increase as the instrument moves on; but finally, and with no undue force, it passes into

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the sigmoid flexure. The pain shoots across the hypogastrium, and does not pass off on withdrawing the bougie. The existence of a third stricture is thus rendered very probable, and patient is aware of it herself, and very much discouraged, knowing that it is too high to be reached by the operation (free division) which I had proposed as a last resort for the others.

May 20.—The hypogastric pain continued, Dr. House informs me, for three days, requiring her to keep her bed; it then subsided, and she has since felt unusually well. Heard nothing of the case until the 25th, when Dr. House called me to see her, and gave the following history: On the 22d she felt so much better that she went to the city on some business, and returned feeling well; had a good night; and the next morning, on passing her flexible catheter through the strictures, as usual, in order to use the carbolic solution, and on reaching the situation of the upper stricture, she felt a sharp pain, which shot across the hypogastrium and increased rapidly in severity. On visiting her, the doctor found unmistakable evidences of a most dangerous peritonitis. The symptoms increased, the pulse ranging to 160, and the prostration, vomiting etc., becoming constantly more alarming, notwithstanding the relief of the pain by hypodermic injections of morphia, until the afternoon of Sunday the 25th, when I was summoned. On arriving at Haverstraw, I found that the patient had been dead two hours. In the opinion of Dr. House and myself there was no doubt of the cause of death, namely, *a perforation of the bowel;* and I ventured to diagnose the exact spot, namely, in the substance of the upper stricture; from the fact that, after the alarming symptoms had continued for some hours, she had a more solid and satisfactory evacuation than she had had for years.

Autopsy.—On exposing the contents of the abdominal cavity, evidences of an intense peritoneal inflammation were at once apparent—dilated capillaries, and the viscera glued together everywhere by layers of lymph; a moderate amount of turbid serum occupied the pelvis. The upper part of the rectum was adherent to the right of the promontory of the sacrum, and on gently detaching it, the *perforation*, in the midst of the blackened tissue of the bowels, was found. The rectum was now dissected out, and, on laying it open, it was found that the perforation had occurred, as had been predicted, just in the upper stricture. This and the other strictures

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were found to be composed of dense fibrous deposit, from half an inch to three-quarters in thickness. The whole rectum, from a point three-quarters of an inch above the upper stricture, was entirely denuded of its mucous lining, and exhibited the ashy surface seen after death from chronic dysentery. The other coats of the intestines were not at all thinned or weakened, even in the immediate vicinity of the perforation.

The particular interest in this case centres in two points: the perforation and the unusual destruction of the mucous lining of the rectum. It is not easy to explain why this ulcer should have formed, and especially at such a point where the gut was reinforced by so thick a deposit of dense fibrous tissue; and where there had evidently been no preliminary softening of the tissues, even in the immediate vicinity of the circumscribed slough which gave rise to the perforation; unless the dilatation by the larger bougie on the 14th, eleven days before death, had set up an inflammatory action, which, in a tissue but imperfectly organized, might readily end in sloughing. The bougie passed in without force, having been only moderately grasped by the stricture, and requiring for its passage through it only a steady, equable pressure. It is impossible, in such a tissue as was found to have constituted these strictures, that any *tearing* could have taken place with such an instrument, which is merely an enlarged edition of the ordinary olive-pointed French flexible urethral bougie, is hollow and soft, and, in my opinion, the only kind of bougie which can with any degree of safety be used in dilating these strictures, more especially when distant from the anus. This was the only specimen recently sent as a sample by the French manufacturers to Tiemann & Co., of New York, and it is to be hoped that this firm will soon supply the market with them, and with similar ones for the œsophagus. Almost all strictures of the rectum are very sensitive, and it is quite common for severe pain to be experienced during their dilatation, and for severe symptoms to follow—often more severe than those which this patient experienced during the three days following the application. The improvement which ensued after these first unpleasant symptoms passed off showed also that no laceration had occurred. Whether the ulcer existed previous to the dilatation, or whether it occurred solely as a consequence of the slight bruising of an imperfectly organized tissue, the *fact* remains as

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another of the numerous warnings recorded by almost every writer on the subject, against the old method of treating all strictures of the rectum by bougies; which, though *apparently* simple and harmless, is probably the most dangerous. In this case there was, unhappily, no alternative, the stricture being out of the reach of any other treatment; and it would have been useless to have attacked the others by any radical method as long as this one remained unrelieved.

As regards the destruction of the lining membrane, I had already given the opinion that very extensive ulcerations existed, since the long continuance and the unusual amount of the purulent discharge could be accounted for in no other manner; but the extent of the ulceration actually revealed by the autopsy was entirely unexpected; especially in connection with *a simple fibrous stricture*, such as could admit of somewhat solid passages. The possibility of the existence of such a condition still further strengthens the position which I have elsewhere taken, that the sooner a stricture of the rectum, even if not very close, is completely divided, and thus relieved at one operation, the less danger the patient will incur.

CASE 21. *Colitis, and Fungoid Degeneration of the Rectum.*

BY DR. GEORGE F. SHRADY, Jan. 27, 1875.

The Secretary presented on behalf of Dr. John Q. Bird, of Jersey City, a specimen of colitis with *stricture of the rectum.* The following was the history of the case: Edward Dorrington, æt. 24 years, a printer, admitted to the Hudson County (N. J.) Hospital, Feb. 10, 1874. He had complained of more or less pain and diarrhœa for a year previous to admission, which prevented him from following his usual vocation. On admission, there was excessive pain over the abdomen, not increased on pressure; and obstinate diarrhœa, there being from six to twelve passages during the twenty-four hours. Following each of these, rectal growths came down having the appearance of large fungoids, which were reduced with much difficulty; but continuing to protrude for several months, a number of them were ligated at different times by the attending surgeons.

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The urine was never examined, as there were never any symptoms pointing to any particular trouble in the kidneys. Acute tuberculosis was developed about three months previous to patient's death. The diarrhœa continued until death.

Autopsy.—Body extremely emaciated. Both lungs firmly adherent to the chest-walls by adhesions dense and of a white color. There were several cavities throughout the lungs of variable size, one being as large as a small orange. Some of these were distended with a brown, dirty-looking fluid of the consistence of cream, and having an intense gangrenous odor. Others contained a fluid having the appearance and consistence of pus. The lungs in various portions were studded with small indurated nodules, about the size of a pea. In the upper portion of the left lung these nodules seemed to coalesce and form a mass as large as an orange. The peritoneal membrane was everywhere healthy. The stomach felt indurated towards its pyloric end, and on being cut into, it was found somewhat constricted and thickened near the pyloric orifice. The rest of the stomach and small intestines were healthy. The rectum, colon, and cæcum were more or less involved on their mucous surfaces with fungoid excrescences which did not extend beyond the ilio-cæcal valve.

Dr. Delafield remarked that the appearances presented were very frequently met with after colitis.

The tuberculosis was doubtless secondary to and dependent upon the disease of the rectum.

Case 22. By Dr. Alonzo Clark, 1852.—Perforating ulcers of the rectum and colon, in dysentery. A patient, while almost convalescent, suddenly became cold, with quick pulse and prostration, followed by speedy death.

Autopsy.—Two ragged, perforating ulcers were found, one in the rectum, a little above the upper sphincter; the other, four or five inches above, in the colon. Fæces had been poured out into the abdomen, but no inflammation had yet set in.

Case 23. By Dr. Alonzo Clark, 1852.—A perforating ulcer of the rectum. He had seen only two or three cases in many years.

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CASE 24. By DR. BENJAMIN MCCREADY, 1852.—There was a perforation of the rectum after chronic dysentery, with an abscess, the walls of which were made up of the rectum, posterior part of uterus, of the ovaries, and a little of the bladder, which is rare.

CASE 25. By DR. JOHN T. METCALFE, 1850.—A benign stricture of the rectum, in a lawyer, which required the frequent use of bougies.

CASE 26. By DR. JAMES R. WOOD, 1850.—There was a benign stricture of the rectum, probably congenital, which had lasted fifteen years. Occasionally there was complete occlusion for weeks, only relieved by the use of a bougie.

Dr. Parker remarked that non-traumatic stricture of the rectum was generally cancerous.

CASE 27. By DR. ALONZO CLARK, 1850.—There was a stricture of the rectum from two bands of fibrin, from old inflammation, which had bound down the bowel.

CASE 28. By DR. ALONZO CLARK, 1850.—There was a stricture of the rectum, from a firm band of fibrin, which acted like a diaphragm, and compressed the bladder, uterus, and rectum.

CASE 29. By DR. THOMAS C. FINNELL, 1852.—There was ulceration of the rectum, in a man æt. 50, who had had dysentery seven years before, followed by frequent attacks of constipation and diarrhœa; death occurred from peritonitis.

Autopsy.—There was pus in the abdomen. The veins of the colon and rectum were varicose. The lower part of the rectum was ulcerated, and riddled in every direction; two fistulæ in ano opened into the rectum an inch and one inch and a quarter above the anus. The usual point of termination of fistulæ internally, is just above the sphincter; but a probe can be passed farther up, owing to a loose mucous membrane which accompanies these cases.

Résumé.—The *sex* is given in twenty-three cases; six males and seventeen females. The *ages* of the males, when given, were respectively 24, 45, 50, and 76 years. Of the females, two of 32

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years; one of 35; one of 38; one of 39; one of 40; one of 45; one of 56; and one of 64 years.

Bands caused the stricture in five cases; cancer, in six cases; syphilis, in five cases; cicatrices of dysenteric ulcers, in four cases; cicatrices of ulcers, in two cases; contractions of pelvic abscesses, in three cases; fibrous stricture, in one case.

The rectum alone was involved in nine cases; the colon, in two cases.

NOTE ON CANCER OF THE INTESTINES.

According to Wilks and Moxon, the small intestine is very little subject to *primary cancer*, and when this does occur it nearly always has the form of *lymphoma*, *i. e.*, it has a stricture almost identical with that of the lymphatic glands. It then always affects the mesenteric glands, also enlarging them enormously, and even extends to the lumbar glands; for columns of the new growth follow the course of the lacteals, and thus connect the cancer in the bowel with that of the glands.

Lymphoma of the bowels has three chief peculiarities: 1st. It rarely ulcerates; 2d. It rather widens than narrows the channel of the bowel; and 3d. It shows very little disposition to undergo other degenerative changes. To the naked eye it resembles medullary cancer, and is often mistaken for it. Its growth is rapid, and it is less frequently and less largely found in the colon.

In the COLON, *primary cancer* is frequent, and chiefly affects the cæcum and sigmoid flexure. One of the most interesting forms is the *colloid*, in which the gelatinous substance seems in some cases to be formed by the follicles of the mucous membrane. It generally forms a thick mass of cancer, extending all around the bowel for several inches of its length. It has less tendency to ulcerate and contract the bowel than true carcinoma, but more than lymphoma.

Cylindrical epithelial cancer is relatively frequent in the large bowel, and may be combined with colloid. Its structure is often a perfect follicular tissue, like that of Lieberkühn's follicles; and it may set up secondary cancer in the liver, which will have exactly the same structure as that of intestinal mucous membrane. It is generally circumscribed at a small spot in the colon, and constricts the bowel there. It is most frequent in the sigmoid flexure and rectum.

The more ordinary varieties of cancer, in their medullary as well as scirrhous forms, are often found in the intestines, and it is to these as well as to the colloid and epithelial forms that cancerous stricture is usually due; while the lymphomatous variety of cancer tends to widen the bowel.

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The mucous surface of these cancers is constantly found as an ill-conditioned ulcer, with thick raised edges, which may lead to perforation and its dire consequences.

The rectum is the most common seat of cancer. Jones and Sieveking say that of 398 cases of fatal intestinal cancer the disease was located in the rectum in 221. According to Paget, cancer of the rectum is remarkable for its seats of election, viz., at from three to four inches from the anus; in the sigmoid flexure of the colon; and sometimes in the ileo-cæcal valve. It is usually annular in form and occupies the whole circumference of the bowel, from one-half to one inch in width. It sometimes happens that cancer of the sub-mucous tissue is associated with growths of softer cancer into the cavity of the bowel, or with formations of colloid cancer. The mingling of these forms is more frequent in the alimentary canal than in any other part of the body. The tendency is for the cancer to contract and condense, and adhere to the surrounding parts, and thus produce stricture of the part. When ulceration takes place the obstructed passage may be more or less re-opened; but previous to this the intestine above the stricture will become excessively dilated. Inflammation may attack the dilated part, leading to infiltration and maceration of the tissues, and consequent weakening or paralysis of the muscular coat, followed by the accumulation of great masses of fæces above.

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Statistics of 258 Cases of Intestinal Obstruction.

COMPILED BY DR. S. FOSTER HAVEN.

	Whole number.	Males.	Females.	Unknown.	Average age.	Operated on.	Not operated on.	Artificial anus.	Recovered.	Died.	Gastrotomy.	Recovered.	Died.	Total recovered.	Total died.	Small intestine.	Large intestine.	Both.	Unknown.	Total.
Cancerous stricture	24	15	9	..	51	8	16	7	6	1	1	1	..	7	16	1	23	..	..	24
Non-cancerous stricture	46	18	28	..	43	11	35	10	6	4	1	..	1	6	40	2	44	..	..	46
Intussusception	59	34	10	15	18	3	56	..	..	..	3	3	..	13	46	23	11	23	2	59
Intussusception with polypi	4	2	2	..	46	..	4	..	..	..	..	..	..	..	4	4	..	..	.	4
Total of intermural	133	69	49	15	39½	22	111	17	12	5	5	4	1	26	106	30	78	23	2	133
Bands and adhesions	39	21	17	1	32	6	33	1	1	..	5	..	5	1	38	34	4	1	..	39
Twists or displacements	18	16	2	..	35	1	17	..	..	..	1	..	1	..	18	3	15	..	..	18
Diverticula	10	9	1	..	30	..	10	..	..	..	..	..	..	..	10	10	..	..	..	10
External tumors or abscesses	5	2	2	1	31	1	4	..	..	..	1	..	1	..	5	3	2	..	..	5
Mesocolic and mesenteric hernia	6	5	1	..	29	..	6	..	..	..	..	..	..	..	6	5	1	..	..	6
Omental hernia	3	3	..	..	55½	..	3	..	..	..	..	..	..	..	3	3	..	..	..	3
Obturator hernia	11	..	10	1	67	2	9	..	..	..	2[2]	1[2]	1	3	8	9	..	..	2	11
Diaphragmatic hernia	8	6	2	..	41	..	8	..	..	..	..	..	..	..	8	1	7	..	..	8
Total of extramural	100	61	35	4	39	10	90	1	1	..	9[2]	1	8	4	96	68	29	1	2	100
Intramural	15	11	4	..	26	1	14	..	..	1	..	..	..	..	15	6	7	..	2	15
Unknown	10	6	4	..	47	6	4	5	5	..	1	1	..	6	4	2	5	..	3	10
Total	258	147	92	19	38	39	219	24	18	6	15[2]	6[2]	9	39	219	106	119	24	9	258

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15.—CASES OF IMPERFORATE RECTUM AND ANUS.

CASE 1. *Congenital Malformations.—Imperforate Rectum and Anus.—Recto-urethral Fistula.—Anomalous Development of the Upper Extremities.*

BY DR. E. L. PARTRIDGE, June 28, 1876.

On June 24, 1876, an infant was born at the Lying-in Department of the New York Infant Asylum, presenting certain conditions which were of considerable pathological interest. The history of the mother is as follows:

Kate M., 17 years of age, unmarried, native of Germany, pregnant for the first time; was admitted to the institution mentioned on March 20, 1876. Her antecedent history contained nothing of importance, and her condition at the time of her admission was excellent. She was quite unable to fix the time of the commencement of her pregnancy, but, judging from her appearance, it was thought that she was about beginning the seventh month of utero-gestation. From the time of her admission to the hospital until the occurrence of labor, her condition continued to be satisfactory. Her urine was examined on a number of occasions and found to contain no abnormal ingredients.

At 9 P.M., June 23 (after some hours of premonitory uneasiness), uterine contractions occurred with regular intervals between them. The breech presented in the L. S. A. position. Labor progressed normally, and at 10.30 A.M., June 24th, a living child, weighing six pounds, was delivered. During the labor it was observed that no meconium was present in the parturient canal, nor could the existence of an anus be discovered. After the child had been washed, it was carefully examined, and certain deformities were observable which may be grossly described as follows: The left external ear was slightly larger than the right, and had a fan shape. The edge was thin and not rolled. Each arm terminated in three fingers at a point which *seemed* to correspond with the

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commencement of the lower third of the forearm. The left shoulder was flattened—the acromial process of the scapula projecting unnaturally—and the neighborhood of the shoulder-joint had such an appearance as is seen in a patient with downward dislocation of the head of the humerus. The genital organs were imperfectly developed, still the sex was, unquestionably, male. The right testis only had descended. The prepuce could be retracted so as to expose a portion of the glans penis about a quarter of an inch in diameter. In the centre of the extremity of the glans a small linear *marking* showed the point at which the natural opening of the urethra should have been.

The anus was imperforate, there being no opening through the skin.

During this examination, which was conducted within two hours after the birth of the child, *intense general cyanosis* followed a fit of crying, and it is probable that at *this time* the foramen ovale permitted the passage of blood from the right auricle into the left. During the *subsequent* life of the child there was *no such cyanotic condition* at *any* time.

The *general* development of the child was *not* that of a well-nourished infant.

In the afternoon of the day of the child's birth, the prepuce was divided along the dorsal surface of the glans. Having in this way exposed the glans, a hypospadias was discovered and a small silver probe was readily introduced through the urethra into the bladder. It was decided to wait until the following day before the performance of any operation for the relief of the impervious rectum and anus; the purpose of the delay being to allow of the distention of the gut with fæcal matter, so that when a dissection should be made in the perineum, the intestine might, *perhaps*, be more apparent than it would have been if the operation was performed earlier.

On the morning of June 25th the child was found to be vomiting a greenish material, which was unquestionably some of the contents of the intestine. The napkin was discolored by a small quantity of thin fæcal matter, some of which was *seen escaping from the urethral orifice*. The urine had been voided.

At three o'clock in the afternoon the child was still vomiting the material described. He was uneasy, crying much of the time.

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The abdomen was very prominent and hard, and the superficial abdominal veins were much distended. Thirty hours having now elapsed since the birth of the child, it was deemed advisable to operate for the relief of the strictured rectum. Both of the operations about to be described were performed by Dr. F. A. Burrall; chloroform being administered from time to time in a sufficient quantity to relieve pain. A curved silver probe was passed through the urethra into the bladder, and allowed to remain. By the aid of its presence in the genito-urinary tract, it was not difficult to avoid injury to the bladder and urethra.

An incision was made in the perineum to the extent of an inch and a half in length. The dissection was continued upward into the pelvis, care being taken to keep in the median line. This incision was finally carried upward fully two inches, until, with the finger placed in the wound, the pulsation of the iliac arteries could be detected. No trace of the rectum had been discovered, nor was there any bulging of intestine into the upper end of the wound synchronous with inspiration or crying. A fine needle was introduced upward for the distance of a quarter of an inch above the superior extremity of the incision, but no fæcal matter made its appearance. Under these circumstances it was not deemed justifiable to plunge a trocar and canula upward. An hour and a half having been consumed in this thorough, though fruitless search, it was thought best to abandon operative procedure in this situation, and the operation of *Littre* was agreed upon. An incision was made an inch and a half in length, about an inch above, and parallel to the outer half of Poupart's ligament, on the left side. The muscular structures and fasciæ having been divided, layer by layer, upon a director, the peritoneum was reached, and through it the large intestine could be seen, the vessels ramifying upon it being intensely congested, appearing like small cords. The peritoneum was now divided, no fluid escaping from the abdominal cavity. The intestine, which was much distended, was stitched to the margin of the abdominal wound, and an incision about three-fourths of an inch in length was then made into it. Thick, dark-colored meconium made its escape mingled with some gas.

In the first operation no arterial twig was cut, and the oozing was very slight. In the second operation, *i. e.*, that of Littre, the hemorrhage was trifling, though two small arterial branches re-

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quired torsion with the artery forceps. The child bore the operations very well.

At 9 P.M. the child was resting quietly and appeared to be hungry. He had passed a large quantity of meconium by the artificial anus, and the abdominal prominence had disappeared, as well as the congestion of the superficial veins.

The child remained in about the same condition until half-past eleven o'clock, when he died; shock following the operation being probably the immediate cause of death.

Autopsy.—Fourteen hours after death, the following conditions were discovered:

Heart normal, the foramen ovale being impervious.

Lungs, liver, kidneys, and stomach normal. Intestines much congested, particularly in the region of the transverse and descending colon. No serous or lymphy exudation in any part of the abdominal cavity. The portion of intestine just above the sigmoid flexure was that which was stitched to the abdominal wound.

The bladder was opened and found to contain no trace of fæcal matter.

One probe having been passed *through* the *urethra* into the *bladder* and allowed to remain there, it was possible to introduce *another probe* into the *meatus urinarius* and pass *it* along the *urethra* until it *neared* the *bladder*, when it diverged from the course of the *first* probe, passing along a *natural* canal into the *lower extremity* of the *large intestine*, which was situated directly behind the bladder, and just above the brim of the pelvis. The opening at which the *second* probe *entered* the *bowel* was small, though quite visible, and presented a *puckered* appearance (as viewed from the inside of the intestine), owing to the *existence* of a *sphincter muscle* surrounding it. The *relation* of the *lower end* of the *bowel* to the *upper end* of the *incision* in the *perineum* was found to be such that, *in all probability*, a trocar plunged upward through the incision would have penetrated the intestine. It was impossible, however, to find any trace of the puncture made by the fine needle during the operation.

A dissection of the left upper extremity revealed a very interesting and anomalous arrangement of the bones and soft structures. Three fingers, each having its metacarpal bone and three phalanges, were present. The carpal bones were absent. The radius was ab-

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sent, while the ulna had the usual characteristics which render it recognizable. A humerus, which was about a third as long as the ulna, was present, articulating at its *lower end* with the *ulna;* while its *superior extremity* lay free in the axillary space, being somewhat covered by muscles. The acromial and coracoid processes were in unusually close proximity.

The pectoralis major had a normal origin, but, having reached the humerus, it found *no* attachment there, but terminated in a tendon. This tendon expanded into two broad muscles, *one* of *which* passed *backward* over the outer side of the humerus, to be inserted into the entire length of the *spine* of the *scapula;* while the *other muscular belly* passed downward to be inserted into the *olecranon process* of the ulna.

Is not the *superior division* a portion of an *anomalous deltoid*, and the *inferior division* a part of an anomalous triceps?

Another muscle *arose* from the *posterior* border of the small *humerus*, and was *inserted* also into the olecranon process of the ulna. This was *probably* the *other* portion of the *triceps*.

A large, thick muscle was *inserted* throughout the *greater extent* of the *upper* and *anterior edge* of the *clavicle*, having *arisen* from the *cartilage* of the *first rib*. As this muscle was of *large size*, and lay *above* rather than *below* the *clavicle*, it can hardly be called the *subclavicular*. May it not be the *other part* of an *anomalous deltoid?*

The *pectoralis minor*, the *trapezius* and the *latissimus dorsi* were *normal* in *location*, *origin*, and *insertion*. The *biceps arose* from the *anterior surface* of the *humerus*, and had an *apparent origin* also from the *coracoid process*. Its *insertion*, owing to the *absence* of the *radius*, was into the *upper* and *arterior surface* of the ulna.

Careful investigation *failed* to reveal the fact that the mother *anticipated* any "marking of the child." She was, however, in the habit of visiting the Central Park, and had, on quite a number of occasions, spent some time in looking at the collection of animals there, *after* she was *aware* of her pregnancy.

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CASE 2. *Imperforate Anus—Passage of a Button into the Bladder.*

BY DR. ALFRED C. POST, Nov. 27, 1872.

Dr. Post presented a specimen from a child eleven months old, who at the time of birth was found to have an insufficiency of the anus. Dr. Bird, of Jersey City, whose patient the infant was, made an incision in the anal region, two inches in depth, and opened the pouched extremity of the rectum, giving vent to meconium. He made an effort to draw the incised gut downwards and attach it to the integument at the verge of the anus, but was unsuccessful. The wound healed, and the little patient lived in good health until a few weeks before death, *passing the fæces in a liquid state through the urethra.* The immediate cause of death was an obstinate diarrhœa.

Autopsy.—The rectum was found to terminate in the prostatic portion of the urethra, where there was a free communication with the latter canal, and, through it, with the bladder. On examining the bladder, it was found to contain a small button with some clothing attached. This had probably been sucked off some part of the garments during the life of the child.

CASE 3. By DR. JOHN P. GARRISH, 1849.—The anus was perfect externally, but ended in a cul-de-sac one-fourth of an inch up. Vomiting and convulsions had occurred. A crucial incision was made, and meconium evacuated; but a day or two after, a bougie would not pass. The convulsions returned, followed by death.

Autopsy.—The rectum was contracted for one and a half inch, commencing half an inch above the anus. The rectal sac passed along the curve of the sacrum, and was firmly bound down by adhesions. There was much blood in the pelvis. The mucous membrane of the rectum terminated abruptly at the commencement of the stricture.

CASE 4. By DR. WILLARD PARKER, 1849.—The anus was imperforate. In old times he generally operated with the trocar and can-

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ula; but had only one successful case in eight. Death generally occurred from convulsions.

Case 5. By Dr. John P. Batchelder, 1849.—The anus was imperforate. Had operated successfully when there was not a vestige of an anus or rectum for two and a half inches up.

Case 6. By Dr. Wm. H. Van Buren, 1850.—The anus was imperforate; the bulging tumor was opened successfully with a blunt-pointed knife.

Case 7. By Dr. Wm. H. Van Buren, 1850.—The anus was imperforate; the obstruction from firm ligamentous tissue was so dense that the trocar could not penetrate it, and was divided successfully with a tenotomy knife.

Case 8. By Dr. Willard Parker, May 26, 1852.—The anus was imperforate, and there seemed to be an epidemic of such cases, as he had seen three within a week.

Case 9. By Dr. James R. Wood, 1852.—The anus was imperforate. The small intestines terminated in a cul-de-sac; being connected with the colon by a peritoneal attachment only.

Case 10. By Dr. Geo. T. Elliot, 1852.—The anus was imperforate; not even a depression, where the anus ought to be, could be seen. Both urine and meconium had been passed through the urethra. On third day, vomiting of matter resembling meconium set in, followed by convulsions and death.

Autopsy.—The colon and rectum were much distended. Air forced through the penis first filled the bladder, and then passed into the bowel. One kidney was greatly enlarged, and its ureter enormously distended; and although the retention of urine had never been complete, the other kidney and ureter were atrophied.

Case 11. By Dr. Robert Watts, 1852.—The anus was imperforate, and the rectum opened into the vagina high up. The woman married before her husband was aware of such an unwelcome state of things.

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CASE 12. By DR. WILLARD PARKER, 1852.—The anus was imperforate; the little patient lived a year after the operation, and then died of impaction from an apple-seed.

CASE 13. By DR. JAMES R. WOOD, 1852.—The anus was imperforate; had seen three cases within three weeks. In one he found the rectum separated from the cavity of the pelvis by its peritoneal covering only. Had now operated on 12 cases, four of them successfully; in one was obliged to dissect up two inches before he could find the bowel; but after several months it descended to the anus. He generally makes a very slight opening, which gradually dilates.

CASE 14. By DR. WM. H. VAN BUREN, 1852.—The anus was imperforate. In one case he had dissected up nearly to the promontory of the sacrum, before reaching the rectum. The tube was kept in for thirteen months, when the parents removed it and the child soon died. In another case, not operated upon, the child was alive at the end of five weeks.

CASE 15. By DR. JOHN O. STONE, 1853.—The anus was found imperforate, in a child æt. 2 days. Vomiting of greenish matter occurred. Examination by a probe encountered a septum one inch up the bowel, where fluctuation was perceptible. Perforation with a bistoury was followed by evacuation of meconium and considerable hemorrhage. Notwithstanding plugging, death ensued, and two or three ounces of blood were found in the peritoneal cavity. There was a laceration at the junction of the bowel with the septum, opening into the abdomen. Another case recovered.

CASE 16. By DR. THOMAS C. FINNELL, 1850.—The rectum was found obliterated for two inches in a child born at full term, commencing one-half inch from the anus. The intestine above was dilated into a stomach-shaped cavity.

CASE 17. By DR. JOHN H. GRISCOM, 1862.—The rectum was obstructed an inch above the anus; the membrane was perforated, and the child lived for three months; daily dilatation was used.

CASE 18. By DR. JOHN P. GARRISH, 1853.—The anus was im-

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perforate. The usual operation and daily dilatation for four months, with bougies, was followed by recovery. Had seen three cases from one mother, all of which died.

CASE 19. By DR. THOMAS C. FINNELL, 1853.—The anus was imperforate. An enlargement was noticed over the top of the sacrum in a new-born child, and it was found that the intestine terminated there in a cul-de-sac, one and a half inches from the anus. In another case of imperforate anus the distance was four inches from the anus to the cul-de-sac.

CASE 20. By DR. GUSTAVUS A. SABINE, 1851.—There was a double anus in a fowl.

CASE 21. *Imperforate Rectum.*

BY DR. JOHN B. STIRLING, September 11, 1867.

The mother of the child was an American woman, and of average size, strength, and general health. She had one miscarriage previous to becoming pregnant the second time—the finale of which forms the subject of the present paper. During the winter she was frequently subject to fainting fits, and in January fell from a step-ladder, bruising her side. Her labor was easy and of short duration. The child was born at 6 A. M., Monday, July 23, 1867, and the nurse did not become alarmed about the absence of the meconium on the diaper till the next day. On Tuesday a syringe was used, but it was not noticed that the entire injection returned until after several repetitions. In the afternoon slight attempts at vomiting were noticed—the discharge from the mouth being somewhat colored. But this did not cause alarm, as something similar is frequently noticed in the newly-born. At 6 P.M. the medical assistant was called, and a digital examination of the rectum found that the finger was arrested by a cul-de-sac at about one inch from the commencement of the anus. I tried to force my way, but found this impossible. The child strained very much, and bore down with force, but no bag of intestine, containing meconium, could be

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recognized. I came to the conclusion that an operation would be necessary, and called upon Dr. Gurdon Buck, who performed the operation on the following day, in the presence of Drs. Weir, Buck, Jr., and Stirling. He wrapped a straight-bladed knife from a pocket-case, with a strip of adhesive plaster, leaving about half an inch of the end free. Keeping the forefinger of the left hand in the rectum, he carried the blade to the bottom of the cul-de-sac and pierced it. The opening was enlarged by a pair of dressing forceps, but only a small quantity of blood followed; no meconium. A female catheter was now passed in, and the extremity moved freely about; it was thought to be in the large intestine, but no meconium followed. A grooved director was then inserted, but no meconium could be detected. A probe was bent in the form of a catheter and pushed into the bladder, by which it was ascertained that an entrance had not been made into the bladder; and finally the conclusion was reached that the female catheter introduced into the anus was moving freely in the peritoneal sac. It was afterwards ascertained that an opening had been made between the bladder and the rectum, and that the large intestine could not have been successively pierced from this direction.

It was now thought to be a fair case for Amussat's operation for an artificial anus in the left lumbar region. Accordingly, a transverse incision was made in the left side, a little above the crest of the ilium, and about an inch and three-quarters from the median line of the back. The cut was carried obliquely forward and a little downward. The various layers of muscle and fascia were divided with care; towards the close, almost fibre by fibre, until the intestine pushed itself boldly through the wound. This was immediately pierced in the line of space left free from peritoneum, by the reflexion of that membrane. At once a large volume of gas escaped, and the opening being large, meconium poured out in very great quantity. This discharge was favored by various means, and when it had subsided, the operation was speedily completed. A very respectable-looking anus was formed by drawing down the doubled intestine and attaching it with a few sutures to the integuments of the external wound. The child was now fed with milk with a little brandy in it, and afterwards with breast-milk. It had never nursed, nor had it been able to retain anything on its stomach before. It was laid in bed in a position to allow the rest

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of the meconium to come away, and this followed in great abundance. The prostration of the child, however, was very great; it did not rally much, and died in about five hours after the operation.

Autopsy.—Body well nourished; well formed; no rigor mortis; color much paler than before operation; abdomen much less distended.

No adhesions were found in the peritoneal cavity, but much coagulated blood in the lower portions, say at least five or six ounces. This probably proceeded from the wounding of some of the hemorrhoidal vessels in the first operation on the rectum from below, and was no doubt the principal cause of death.

The parts involved in the second operation were carefully dissected out, viz., the external anus, including the rectum and the large intestine; also the artificial opening, and some inches of the intestine above this opening. The specimen demonstrates the fact that where the intestine had been opened in the lumbar region, the peritoneal cavity had been cut into by a small opening on the side of the colon towards the spinal column; but not on the side towards the ilium.

It also shows that the operation from below could not have been successful; for at three-quarters of an inch above the anus there was complete occlusion of the rectum, and the intestinal canal for two and a half inches above this point was entirely absent. On passing the finger in the intestine, from above downwards, it was arrested by a complete natural cul-de-sac, which was as fully closed as a finger of a glove. The connection between the intestine and the rectum was therefore entirely obliterated, or absent for the space of at least two and a half inches.

Case 22. By Dr. Abraham Jacobi, 1870.—The specimen consisted of portions of the rectum and colon of a new-born infant which had suffered from imperforate rectum. An operation was made for its relief, and the usual incision failed to cause the discharge of meconium. A second was then made, when the instrument reached the desired spot; but, as shown in the specimen, it had passed through a portion of the peritoneum, allowing some of the meconium to escape into its cavity.

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Case 23. *Total Occlusion of the Small Intestines.**

By Dr. Ernst Krackowizer, 1862.

There was complete occlusion of the intestines in a new-born child which lived five weeks; no meconium was passed; the anus and rectum were well formed for six inches; some whitish gray substance and a little meconium were evacuated. The occlusion was supposed to be at the sigmoid flexure; the child was healthy and well formed; its urine was normal; and it fed well for four days, then vomited fæcal matter. This recurred regularly for three weeks; the abdomen, which gradually became swollen, always resumed its normal shape after the vomiting-turns, so that the obstruction was finally judged to be above the cæcum. After the third week the abdomen did not subside after vomiting, and loops of the intestines could be seen in large masses through the very thin abdomen. Death occurred from exhaustion in the fifth week.

Autopsy.—The small bowels greatly distended, filling the whole abdomen in the right iliac region; about a foot from the caput coli there was a process, the size of a small packing thread, rolled in spiral loops, formed of the intestine below the occlusion. The large bowel was normal, but there were no mesenteric glands below the occlusion. The obstruction was complete, and doubtless arose from intra-uterine peritonitis, as there was a false membrane passing from the mesentery to the ascending colon. The bowels have been known to be occluded in every part of their course; those below the ileo-colic valve are generally fatal in five days.

Résumé.—The sex is given in three cases only. One case was an adult female. In three cases the bowel communicated with the bladder or urethra, and in one case with the vagina.

In two cases there was complete occlusion of the small intestines.

NOTE ON IMPERFORATE ANUS.

In order to comprehend the pathological history of this condition, we must consult embryology. At a very early date in embryonic life a con-

* See case of total occlusion of the duodenum, page 3.

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nection exists between the bladder and rectum, by which the former serves as a cloaca, like that in birds and insects. Subsequently the rectum extends downward as a diverticulum or cul-de-sac, into the lower pelvis, at the same time that a similar diverticulum, or blind-projection, from the external skin, about the region of the anus, is growing upward. It is not until these two cul-de-sacs meet, and an absorption of their terminal sac-walls has occurred, that a communication between the rectum and anus takes place, and the communication with the bladder is obliterated.

In the simplest and most favorable kind of imperforation, or *atresia* of the anus, the rectum has grown down towards the anus, which it is unable to perforate, because there has been no formation of the anal cul-de-sac.

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VI. DISEASES, ETC., OF THE PERITONEUM.

1.—MALIGNANT DISEASES OF THE MESENTERY AND PERITONEUM.

Case 1. *Carcinoma of the Peritoneum, secondary to Retrograde Carcinoma of the Mamma.*

By Dr. Markoe, March 9, 1853.

The patient was an Englishwoman, aged 51. Several years before her death a small, discolored spot appeared in one breast, which increased until a tumor occupied the entire mamma. Soon after this a similar tumor appeared in the other breast. For about four years both tumors increased slowly, attended with much pain, until each had reached the size of a man's fist; after which the pain ceased, and the tumors of the breast slowly diminished in size. Then her abdomen began to swell, causing dyspnœa, and requiring tapping; afterwards the ascites returned, and required tapping nine times; once every five to seven weeks, thirty-five quarts per time. She finally died exhausted by the disease.

Autopsy.—The peritoneum covering the intestines and the abdominal wall was found infiltrated with new material, giving to the bowels the character of nearly solid cords, as if moulded out or stuffed with plaster. The portal vein was compressed by similar new material in nodular masses, from the size of a pin-head to that of a pea. A small nodule of the same character was found in the heart. The masses were interspersed with little cysts containing serum, from the size of a pea to that of a walnut, and there was a peculiar vascularity around them. The whole surface of the small intestines was more or less agglutinated by old false membranes. The principal seat of the deposits was over the small intestine; but the spleen was entirely covered with them; the liver was attached to the ascending colon; and the parietal peritoneum presented the same nodulated appearance. The portal vein was compressed by

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the deposit, both as it lay in the mesentery and where it passed into the liver; and doubtless was the principal agent in causing the dropsy. After every tapping the intestines could be felt through the walls of the abdomen like coils of rope; and after death their coats were found so infiltrated and thickened with this substance, that they resembled solid cords. The rectum was compressed, the uterus and ovaries covered with the deposit, and a Fallopian tube had been caught over a cyst of the ovary, and stretched out like a hook. Almost the whole of the deposit was on, or in, the peritoneum. There were also hard, small, cancerous nodules over the back and shoulders.

In the mammæ, close beneath the skin, were found dense, whitish yellow tumors, one-third of an inch thick, and attached to the nipples. Upon the shoulders and back were many small, subcutaneous tumors. *The microscopical examination* was made by Dr. Alonzo Clark. He found the tumor in the breast to consist almost entirely of dense fibrous tissue, and a very few cells $\frac{1}{800}$ inch in diameter. The new material in the peritoneum consisted of (1) Fibrous tissue in bands, and forming small spaces, which contained cells. (2) Cells of the size of a blood-globule. (3) Oval and pisiform nucleated cells. (4) Very large cells containing several nuclei. In the intestines not only the peritoneal, but, in many places, the muscular coat was replaced by the new growth, and in which were situated a great number of minute cysts.

CASE 2. *Cancerous Disease of the Mesentery.*

BY DR. WM. H. THOMSON, Oct. 26, 1870.

Dr. T. presented an abdominal tumor from a young man, aged 25, to whom he had been called to decide whether operative procedures were advisable. There was considerable tympanitis, but by gentle manipulation a tumor about the size of an orange could be detected just to the left of the umbilicus, deep-seated, *and attached at its base to the spinal column.* It seemed to be continuous, on percussion, with the line of the spleen posteriorly. The patient had complained of constant pain in the back for over

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eighteen months, and at times, especially in the latter part of the day, it became so severe that it caused emesis. There had been no trouble about the gastric or intestinal digestion, neither was there emaciation. Besides this pain in the back, he had also severe suffering in the head of the penis, which felt at times as if it were literally packed in ice. Occasionally the flow of urine would be arrested in consequence of this pain. Again, much pain was complained of in the left groin, in both hips, in the balls of the feet, in the breast, and between the shoulders. The diagnosis of a cancerous tumor was made, involving probably the left kidney. Some two weeks afterwards the patient rather suddenly commenced to sink, and died, exclaiming in his agony, "Oh, my poor shoulder!"

Autopsy.—The abdomen only was opened. The peritoneum was healthy in every part, but its cavity was filled with blood. The tumor, rounded in shape, was discovered firmly attached to the left sides of the *last two dorsal and first lumbar vertebræ*, involving the region of the psoas muscle and extending down into the pelvis. On the opposite side of the spine was a chain of enlarged ganglia filled with softened material. On microscopic examination these ganglia, as well as the tumor, which was in reality nothing more than an enlarged lymphatic gland, were found made up of collections of large and irregularly-shaped cells. The source of the hemorrhage was not discovered. The point of interest was the wide radiation of the pain.

Case 3. *Cancer of the Omentum.*

By Dr. Lewis A. Sayre, 1869.

Dr. Sayre presented a tumor of the omentum from a middle-aged man. On examining him a tumor was found in the left ileo-lumbar region, the nature of which could not be made out; but from his general cachectic aspect it was suspected to be malignant, and he was told that little could be done for his relief. The growth occasioned the patient no special inconvenience, and had only been accidentally discovered by him a short time previously. He afterwards consulted a homœopath, who told him it was nothing

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but a "wind tumor," and that he would cure it in a short time; but he continued to grow worse, and died shortly afterwards.

Autopsy.—He was emaciated almost to a skeleton; as during the last days of his life he had been physicked to an alarming extent, and was allowed to drag himself five or six times in the day to the water-closet, until he finally sank from exhaustion.

The abdomen was very much sunken; the peritoneum was perfectly dry. No omentum could be seen, but in lieu of it was a small mass in the left ileo-lumbar region, which was adherent to the abdominal walls, and marked the site of the tumor felt during life. He was of the opinion that it was cancerous in its nature.

This was the third tumor of the kind that he had met with in that situation, and from the fact that they all occurred in prominent billiard-players, he was inclined to associate them with bending over the table, as a cause.

CASE 4. By DR. LEWIS A. SAYRE, 1853.—There was cancer of the peritoneum in a robust man, who, like Falstaff, had had losses, became melancholic, and emaciated rapidly almost to a skeleton. There was slight dyspepsia, but no pain or vomiting. A tumor was felt in the abdomen.

Autopsy.—Two or three quarts of serum in the abdomen. The peritoneum looked as if three or four quarts of shot, some as large as a pea, had been sprinkled over it. The bladder was compressed by them, so that it could only hold a wineglass of fluid. The intestines were matted together and thickened by them. The colon was not larger than a thumb; the stomach, liver, and pancreas were agglutinated in one mass, and the pancreas indurated. The only complaints were of debility and loss of spirits.

CASE 5. By DR. ALONZO CLARK, 1853.—There was a small, white, shining irregular deposit of cancer covering the whole surface of the peritoneum.

CASE 6. *Colloid Cancer of the Peritoneum.*

BY DR. GEORGE T. ELLIOT, 1867.

Dr. E. presented a specimen of colloid cancer of the peritoneum and ovaries.

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Louisa A., age 36, married, sought relief from a large abdominal tumor. Her general health was excellent, appetite and digestion good, bowels regular, menstruation normal; no hereditary predisposition to cancer. Three years ago, after the birth of her first child, she was suddenly seized with severe pain in her abdomen, and noticed that it was enlarged symmetrically, but no tumor was felt. The pain recurred at intervals, ranging from weeks to months; menstruation was painful for two periods about this time. Her abdomen remained without increase in size until August, 1868, when, after over-exertion on her part, three gallons of clear, color less fluid drained from the vagina in the course of seven hours, when the abdomen collapsed, and she felt a hard tumor in the *left* iliac fossa. The abdomen began to refill almost immediately, and grew rapidly in size. In April, 1869, after an acute attack of pain, felt a hard lump in the *right* iliac fossa.

Girth at umbilicus, 42½ inches; do. at ensiform cart., 34; umbilicus to ensiform cart., 8¾; umbilicus to pubes, 10½; umbilicus to right ant. sup. sp. ilium, 12½; umbilicus to left ant. sup. sp. ilium, 11. Fluctuation faintly perceptible all over the abdomen, but most marked on the left side. A tumor, marked by furrows, could be readily felt through the abdominal walls, filling up nearly the entire cavity.

The uterus measured 3½ inches, and was in good position. The posterior wall of the vagina was prolapsed, forming a tumor, outside the vulva, as large as a goose-egg; evidently containing, in addition to fluid, some substance which slipped from the grasp, and felt very much like a knuckle of intestine.

Diagnosis—polycystic ovarian tumor. Preliminary tapping was tried, but no fluid followed the withdrawal of the trocar. A syringe was then applied to the canula, and a few drops of jelly-like substance obtained. Symptoms of peritonitis manifested themselves, but the pain was never very severe, and readily controlled by small doses of opium. The prostration becoming excessive, stimulants and nutriment were given freely, but without effect, and she died in collapse.

Autopsy.—The tumor at the vulva being tapped, nearly a quart of turbid fluid, containing lumps of semi-transparent material, was driven out with some force by the gases accumulated in the abdominal cavity. The abdomen being laid open, a large colloid polycystic

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tumor was disclosed, nearly free from adhesions, and involving both ovaries. A number of semi-transparent masses, varying in size from a pea to an egg, were found, some loose in the cavity, others attached to the peritoneum. There was a moderate amount of peritonitis.

Examined with the microscope. 1st. A section of a large mass found in the longitudinal fissure of the liver, was made up of cells of an epithelial character, with hardly any stroma. Intercellular substance in some places finely granular, in others transparent; cell-elements disproportionately abundant. 2d. A nodule found loose in the peritoneal cavity, was found to be made up of regular alveoli, the contents of some of which were transparent, of others well-marked epithelial cells. 3d. The tumor itself: here only irregular transparent lumps and some few cells, the bodies of which had undergone degeneration, while the nuclei appeared intact. His examination of the tumor led him to declare that it belonged to the variety cystic-sarcomata. He was in favor of making an exploratory operation at once, tapping the tumor, and, if possible, removing it; and if not, of closing up the wound. In the consultation which followed, the opinions were in favor of preliminary tapping. Dr. Peaslee advocated puncture through the rectocele; while Drs. Taylor and Thomas were in favor of tapping in the usual place, inasmuch as a mass had been discovered floating in the former, which felt very much like a stray loop of intestine, but which, at the autopsy, proved to be one of the free diseased nodules in the peritoneal cavity.

Case 7. By Dr. Alonzo Clark, 1853.—The specimen verged on the very border where cancer becomes blended with, or runs into fibrous deposit. It was mainly fibrous, of the fine silky variety; some of the fibres separated, leaving meshes filled with cells, and some fatty matter; with a few mother-cells of more than usual size, containing other cells. Also many cells of the size of blood-globules, and granular either in whole, or in part. There were also oval cells with clear nuclei; and cells elongated into fibres at one or both ends. Also cells of a three-fold larger size, either granular or nucleated, and a few caudate cells. All the cells contained fat. In

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the rectum there was much fibrous matter, and scarcely any remains of proper muscular structure, from an almost countless number of small rounded cysts, lying between the fibres, and filled with exceedingly minute granules of very uniform size. Also a considerable number of visible, but small serous cysts. The peritoneum was largely involved.

CASE 8. By DR. ALONZO CLARK, 1853.—The tumor was of the softest variety of encephaloid in a child æt. 15 months, which had been sick for four months, with a tumor growing rapidly from day to day, until it filled the whole abdominal cavity, and prolonged itself through the left abdominal ring into the scrotum.

Autopsy.—There were two tumors, one fluctuating, the other solid; the former containing a basinful of glairy fluid and a semi-solid substance like softened brain. The disease originated either in the left kidney or mesentery. There was a small nodule on the liver. The mass and the fluid were made up of surprisingly uniform cells, some of them granular. The points of interest were the very rapid growth, the uniform character of the large mass, and the microscopical resemblance of the fluid and solid portions of the disease.

CASE 9. By DR. JOHN A. SWETT, 1849.—There were solid plum-shaped bodies lying or floating loose in the cavity of the abdomen. They were formed of concrete layers of lymph, and not malignant. Some were attached by pedicles, others were loose.

NOTE.—These loose bodies are small and of a definite character, and arise no doubt from one source. They are oval, or round, or flattened like a bean, enclosed in a capsule, and composed of fibrous tissue and fat. They are developed in the appendices epiploicæ, which become altered in structure and then drop off, forming loose tumors. One is described as being found in a hernial sac by a surgeon.

CASE 10. By DR. THOMAS C. FINNELL, 1871.—Dr. F. exhibited a specimen from a woman 54 years of age, married and childless. For three years she had been suffering from abdominal pains and a tumor in the left side. She had had umbilical hernia for over thirty years, and the truss had produced considerable induration at its points of contact. The case was looked upon as an ovarian tu-

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mor of the left side. While she was being prepared for the preliminaries of tapping, she died.

Autopsy.—The abdominal cavity was filled with a serous fluid, the result of a serous inflammation caused by a scirrhous mass on the right side. It was *sub-peritoneal*, and seemed to involve the sub-cellular tissue principally, and to some extent the abdominal muscles. It had its origin in the umbilical irritation.

CASE 11. By DR. WM. H. MACNEVEN, 1853.—There was a cancerous tumor of the abdomen weighing from forty to fifty pounds. False fluctuation had been felt, and an attempt at tapping had been made.

CASE 12. By DR. CHARLES E. ISAACS, 1852.—There was a cancerous tumor of the abdomen, with a bony mass in the centre.

CASE 13. By DR. JOHN N. GRISCOM, 1862.—There was a cancerous tumor of the abdomen weighing thirteen and a half pounds, in a man æt. 47, who had had fever and ague more or less for seven years, and hæmaturia four times during last two years, lasting more than a week each time. Three years ago he noticed a swelling in the left hypochondrium, which was mistaken for an enlarged spleen; it increased slowly. Then a swelling was found in the left iliac region, also gradually enlarging. He never had any pain or soreness of consequence. Constipation, debility, anæmia, and frequent vomiting, were the only symptoms. The spleen was healthy, weighing only eight ounces.

CASE 14. BY DR. THOS. C. FINNELL, 1859.—There was encephaloid disease of the abdomen, in a man æt. 28, who had crushed his left testicle, which was excised. A few weeks after he felt pain in the umbilicus and a small tumor was found near there, followed by failure of health, abdominal enlargement, increasing rapidly, and death.

Autopsy.—A large tumor was found to the left of the median line and a smaller one on the right side, adherent throughout to the walls of the abdomen, and composed of soft, brain-like substance. Another mass seemed to have sprung from the omentum, and although it lay immediately upon the kidney, it did not involve it. It was of the size of a child's head, and lobulated.

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CASE 15. By DR. ROBERT WATTS, 1850.—There was a large encephaloid tumor of the abdomen.

CASE 16. By DR. ALONZO CLARK, 1850.—There was an encephaloid tumor of the abdomen in a child, æt. 1 year.

CASE 17. By DR. J. H. BOWEN, 1850.—There was a large encephaloid tumor of the abdomen weighing thirty pounds, in a woman æt. 30, arising either from the vertebræ or ribs. It had been growing three years, and now filled whole of the right side. It was firmly and extensively attached to the peritonæum, covering the vertebræ. Large blood-vessels traversed it, and there was an extensive ossific deposit in its centre, radiating towards the circumference.

CASE 18. By DR. WM. C. ROBERTS, 1852.—There was an encephaloid tumor of the abdomen in a woman, æt. 37, of two years' growth. It commenced in the right side near the groin, increased rapidly, and became immense. From its lobulated feel, great mobility, absence of pain, constitutional disturbance, and continual but slight discharge of blood from the uterus, it was supposed to be a fibroid tumor of the womb; but it turned out to be an encephaloid mass ten inches in diameter *behind the posterior peritoneum*. Death occurred from rather sudden dyspnœa. Numerous medullary nodules were also found in the lungs.

CASE 19. By DR. BENJAMIN MCCREADY, 1857.—There was cancer of the abdomen, with ascites, which is rare, and entire absence of pain.

Autopsy.—A tumor two or three inches thick, and of a dirty lightish brown color, was found in the omentum, extending from the stomach down to the umbilicus. The transverse colon was imbedded in its upper portion, which was also attached to the spleen and abdominal parietes. There were cancerous patches under the peritoneal surface of the intestines. The liver was adherent to the diaphragm by a cancerous mass, and there were a number of soft nodules in its transverse fissure about the size of a hazelnut, and surrounding the vessels. The fundus of the uterus was enlarged and infiltrated with whitish, apparently cancerous

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matter. The dropsy was doubtless owing to compression of the portal vein by cancerous exudation around it. There was no trace of cancerous cachexia. The deposit was made up of a great variety of cells, many of them with very large nuclei.

Case 20. *Colloid Cancer of the Abdomen.*

By Dr. J. Foster Jenkins, 1852.

A woman, æt. 68, had umbilical hernia and a tumor of twelve years' standing. The latter grew without much pain, and she was able to walk, but her appetite and strength finally failed.

A dusky red vascular tumor, of the size of a goose-egg, with an easily reduced hernia at its upper border, was noticed, attended with some soreness of the abdomen, heat, short, quick pulse, etc. There was fluctuation in the abdomen some months afterwards, when the pain became severe and constant, especially in the lower portion of the belly, attended with difficulty of breathing and an irritable stomach. She was tapped, but no fluid escaped.

Autopsy.—An enormous amber-colored, trembling, jelly-like mass protruded. It was tenacious and glutinous, filling the whole abdominal cavity, and moulded into all the interstices of the viscera and bowels. There was a compound ovarian cyst on the left side, extending from the pubes nearly to the diaphragm, about the size of a gallon measure, and adherent by false membranes; its loculi were filled with some amber-colored, gelatinous substance, in nodules from the size of a currant to that of an egg, with opaque, white masses, like thick cream, and some reddish lumps, from exudation of blood. The umbilical tumor was omental, made up of cysts similar to those of the ovary, and varying from the size of a pea to that of a hazel-nut. The whole omentum was loaded with colloid masses of the size of a currant. There was colloid disease of the uterine neck, but none in or about the liver. The gelatinous accumulation measured twelve quarts. The whole was an areolar or gelatiniform cancer, with many crystals of ammonio-magnesian phosphate. There was a minute, whitish network, with numerous embedded cells with granular nuclei. Her mother died of cancer of the cheek.

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CASE 21. By DR. DASH, 1860.—There was medullary cancer of the abdomen in a lady, æt. 54.

CASE 22. By DR. ALONZO CLARK, 1853.—There was waxy degeneration of the mesenteric glands, with a waxy liver, which was enlarged, pale, and very hard. The waxy cells were not in the tubes, but in the fibrous tissue. The stroma running between the tubes was infiltrated with waxy cells, identical with those in the waxy liver, and not soluble in ether—either hot or cold—like fatty matter. The glands, as a whole, were soft, pale bluish, and looked as if they contained tuberculous matter—which they did not. The material was more albuminous than fatty; and it had not been originally fatty, with the fat absorbed and cells left behind.

CASE 23. By DR. JOHN G. SEWALL, 1853.—There was a tumor of the ovary, and cancer of the peritoneum, in a woman, æt. 47, who had been sick for five months. Four months ago fourteen quarts of fluid were drawn from abdomen, and thirty gallons in all, by seven tappings. She had great dyspnœa and debility. A tumor was discovered in the left pelvic region. Death.

Autopsy.—The tumor was made up of cysts occupying the whole pelvic cavity, rising above the crest of the ilium. Portions of it even seemed tuberculous. It involved both ovaries, and the mesentery was also infiltrated with a large number of tumors, while the peritoneum was studded with them. The liver was somewhat cirrhotic and fatty.

Résumé.—Many more cases of malignant tumors of the abdomen have been presented to the Society, and will be published at some future time.

The *sex* is mentioned in fourteen of the above cases, seven males and seven females.

The *ages* are given in fourteen cases: two in children of 12 and 15 months; one female of 30 years; one of 36; one of 47; one of 51; and two of 54 years.

One male was 25 years old; another 28; one was 35; one was 37; one was 47; and the other 68.

Six cases are described as encephaloid; seven as cancer; two as colloid; one as scirrhus; one as sarcomatous; and two as partially bony.

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NOTE ON MALIGNANT DISEASE OF THE MESENTERY AND PERITONEUM.

According to all authorities, malignant growths attack the peritoneum and omentum in some very rare cases *primarily*, but most often by an adjoining growth extending to it, perforating and penetrating it. The disease is sometimes of the *encephaloid* variety, but more often of the *colloid*. The latter is often spread over the entire serous surface, in the form of small millary nodules (which may be mistaken for tuberculous peritonitis), or is clustered together in some parts. Sometimes it occurs as a layer of areolar cancerous tissue, varying in thickness; or as a circumscribed, round, lobulated aggregation. The omentum is then shrivelled up into a transverse band; or is degenerated, with an enormous increase of size, into areolar cancer. This generalized cancer of the peritoneum may occur as a consequence of the bursting of a softened cancerous tumor in some adjacent organ, and then the small growths appear as if sown over the surface; or else by extension and rapid growth are agglomerated into one mass. A cystic sarcoma may cause the growth of small tumors on the peritoneum, by rupture into the peritoneal sac. *Sarcomatous* growths often originate in the post-peritoneal cellular tissue, just in front of the spine, and, according to Walshe, may spread upward, extend to the stomach, press under the liver, twist around the duodenum and pancreas, and finally appear as a tumor in the epigastrium. Primary malignant tumors of the peritoneum are almost always sarcomatous, and, although their growth is rapid, may be unattended with pain or disturbance of the system for a long time.

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2.—RETRO-PERITONEAL TUMORS.

CASE 1.—*Sarcoma of the Retro-Peritoneal Lymphatic Glands.*

BY DR. JOHN B. KNAPP.

James Wright, æt. 33. Irish. Engineer. Gave no history of malignant disease in his family. Has generally been in good health, but in his youth was accustomed to indulge in some athletic sports, which required severe muscular exertion, though he was never conscious of having overstrained himself. Has never had any serious illness; has always been temperate, and acknowledges no venereal disease.

He was well, and able to work up to March, 1876, when he began to suffer from slight pain in the lumbar region, gradually increasing in severity until it became constant. Five months later, about the first of August, his attention was called to the existence of a slight swelling in the abdominal region, just below the umbilicus, but which was not painful on pressure.

August 12.—Entered Roosevelt Hospital. A distinct tumor could be felt through the abdominal wall, about the size of a hen's egg, and very slightly movable. He remained in the institution two months, during which time the tumor slowly increased in size; and constant pain in the back rendered anodynes indispensable. He was examined by Drs. Clark, Watts, and Delafield, who concurred in the diagnosis of a malignant growth *attached to the spinal column.*

Nov. 4.—Tumor about the same size, but somewhat tender on pressure. Urine acid, 1018; no albumen.

Nov. 12.—Has obstinate constipation, but a rectal injection of tepid water gave immediate relief.

Nov. 30.—He was seized with severe pain in the head of the penis, and was unable to pass his water; but after the lapse of three hours the urine suddenly came, followed by a discharge of clotted blood, which somewhat relieved the pain, and after a hypodermic injection of Magend. Sol. Morph., ℥xv., patient slept well.

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Dec. 3.—Has had no return of hæmaturia, but complains of great soreness throughout the pelvis; and the tumor has enlarged to the size of a man's fist.

Dec. 14.—For two days he has had frequent passages of mucus and pus from the bowels, followed by tenesmus. The urine contains urates and mucus, but no albumen or casts.

Jan. 6, 1877.—Skin becoming sallow. Pain in back constant and severe, unless he is under the influence of Magend. Sol. Morph., of which ℥xx. are now given every four hours.

Feb. 1.—Patient is confined to the house. Tumor steadily increasing in size, becoming nodular; and on pressure over the third lumbar vertebra there is marked tenderness.

Feb. 19.—Bowels have been constipated, and relaxed in turn, and for a few days he has been troubled with an almost constant sensation of tenesmus. Rectal evacuations have been mingled with pus and a considerable amount of tenacious mucus.

Nov. 3.—Rapidly emaciating and failing in strength; feet and legs œdematous; specific gravity of urine, 1012; acid; no albumen, but mucus; uric acid crystals; and a few hyaline casts.

Mar. 14.—Legs extremely œdematous, but a few punctures in each leg gave great relief.

Mar. 17.—Rapidly failing. Requires Mag. Sol. Morph., ℥xxv., every two hours to render the pain endurable.

Mar. 22.—Died at 2.30 A.M.

Autopsy.—March 23, by Dr. Francis Delafield.

Peritoneum over the lower and right portion of the abdomen coated with pus. A tumor of the size of a child's head, lobulated and situated entirely behind the peritoneum, was found attached *to the anterior surfaces of the four lower lumbar vertebræ*. The vertebræ themselves were not involved. The transverse portion of the duodenum and the rectum were adherent to the growth which had penetrated their walls. The tumor looked as if formed of a number of enlarged glands; is soft, and a large part of it is yellow and broken down.

Microscopical examination shows it to be a sarcoma of the retroperitoneal lymphatic glands.

The aorta ran under the tumor. The vena cava was invaded by it, and entirely replaced for about three inches by the new growth.

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The kidneys had their calyces dilated; and the kidney tissues were atrophied.

Case 2. By Dr. Abraham Jacobi.

Dr. J. presented a large tumor from a child 3 years and 4 months old. He first saw it three months ago, with a large swelling of the abdomen. There was dulness on percussion over a large surface; with a tympanitic percussion sound in the right iliac fossa, and upward in the right renal region. There was tympanitic percussion sound also in the region of the left kidney, adjoining the spinal column; and again about two and a half inches above the projecting umbilicus, in the median line, and a little to the right. The tumor did not feel like a uniform or solid mass, but showed five or six indentations, and a particularly large depression in the median line. It yielded a dull percussion all over; and also a more or less distinct sensation of fluctuation, which was so distinct in some parts that I believed that I had to deal with a cyst, at least a part of which, contained a liquid. There was now and then a peculiar crackling sound, produced by pressure upon the tumor in the median line; but the sensation of fluctuation was principally confined to the left iliac fossa. The crackling sound inclined me to believe that I had a case of echinococcus; but the hardness of portions of the tumor made it more probable that I had to deal with a conglomerate of cysts with an intermixture of solid masses —in a word, a cystic sarcoma. In a number of examinations the sensation of fluctuation was always so distinct that I introduced an exploring needle a number of times, but succeeded in obtaining nothing but blood. In two instances only I brought away a liquid, which I examined carefully, but not finding any hooks, I gave up the idea of echinococcus; and inasmuch as there was tympanitic percussion in the regions of the kidney, I also gave up the idea of cystic disease of those organs. The spleen was the only organ that seemed to be involved in the growth, and I finally took it for granted that I had a case of cystic degeneration of that viscus.

The history was, that the child had been ill all his life; that about a half a year before it was presented at my clinic, a swelling had

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been noticed in the region of the umbilicus and a little above, extending to the region of the liver; and that a physician had taken it for a "swelled liver."

When I saw the swelling it was mostly on the *left* side. The child was under observation for ten or twelve weeks, and the tumor in that time grew so rapidly that it finally filled the whole abdominal cavity. Only in the right side the tympanitic sound continued constant. Moreover, a little tympanitic percussion sound could be discovered in the left side, two or three inches above the anterior superior spine of the ilium. The child continued in pretty good condition, and after the tumor had become comparatively old I excluded the possibility of malignancy; and as there were no symptoms of peritonitis, I began to think earnestly of attempting to remove the growth, large as it was, believing that I had to deal with an enlarged spleen. I did not intend to open the abdomen with the knife, but determined, instead, to resort to the Vienna paste; thus producing an adhesive inflammation and allowing me to enter the cavity of the cyst, as I had previously done in another case. The gentleman who applied the paste, selected a place somewhat different from the one I had pointed out, and the result was that a portion of the colon which covered the tumor was injured; and the child, during the last week or ten days of its life, suffered from a stercoral fistula; but did very well with it until a few days before his death, when symptoms of peritonitis showed themselves, and death finally ensued.

Autopsy.—This portion of the abdominal wall, taken from the left side, shows the artificial opening made by the Vienna paste. The larger portion of the tumor was found in the left half of the abdominal cavity, lying against the vertebral column, and presenting a correspondingly deep groove, which extended forward to just that place in which, especially in the beginning, I could produce a tympanitic percussion sound. In here was a good deal of that sensation resembling fluctuation, and in that neighborhood I wanted to find my way into the cyst. The tumor is lobulated, and there are grooves everywhere; it appears to consist of a number of tumors which are either adhering to, or growing out of, an original stock. In this neighborhood you find fresh adhesions, the results of peritonitis, originating the last few days. This is the peritoneum which covers the whole tumor, and can easily be peeled off. There

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were no considerable adhesions to any organ of the abdominal cavity, with the exception, perhaps, of the spleen, which you see here in a normal state. The mistake in diagnosis was simply due to the fact that the tumor was so adjacent to the spleen that a dull percussion sound from it was continuous with the whole. The principal adhesions were found posteriorly. About the *last dorsal and upper lumbar vertebræ* it was, to a certain extent, difficult to tear off the tumor; and here you find a single place adjoining the upper lumbar vertebra, in which a portion of the mass was torn in an attempt to remove it. The rest came away pretty readily.

On cutting into the mass there are found a large number of little cysts, some of them as large as half a walnut, and some the size of a pea. In a large number of spots there were apparently small hemorrhages; but these appearances are mostly due to an imbibition of the walls of the large vessels, which generally contained also a good deal of loose fibrine. The consistency of the tumor varies, and I have since believed that the peculiar crackling sensation in my first examinations was due to my pressure upon the central portions of the tumor. The microscopical composition of the tumor is pretty uniform. There is some elastic tissue in it, and a good deal of cellular tissue, mostly found in the darker portions. The white portions consist greatly of spindle-shaped cells. The softer portions, one of which I show you, and one to which the tumor is principally attached, consists of round cells altogether; so that there is this portion which appears isolated. On opening it, it has a peculiar white color, and is evidently more consistent in consequence of the compression of the large tumor. This lump forms a separate tumor, which is embedded into the large mass, and which it appears came so very near being torn out, that it might have been found as a free body. This also consists of round cells, with a very few spindle-shaped cells. The whole mass *is a sarcoma* with a very large number of cysts, and by no means what I took it for. The diagnosis was not correct, neither as far as its nature, nor its locality were concerned. It evidently took its origin from *the retro-peritoneal glands* in the neighborhood of the lower dorsal and upper lumbar vertebræ. It cannot be expected that a tumor of this size (seven and a half pounds) would confine its origin to one point.

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CASE 3. *Cancer Involving the Retro-peritoneal Glands and Testis.*

BY DR. EDWARD L. KEYES, January 8, 1873.

Dr. Keyes presented an abdominal tumor and testis, the latter removed by operation from a patient of Charity Hospital, aged 23, single, and a laborer by occupation. He was admitted October 17, 1872. No history of any hereditary predisposition could be obtained, but he had the delicate pink complexion indicative of a general unsound condition. He was a left monorchidis, his right testicle never having descended. Four months before he entered the hospital, and after an attack of gonorrhœa, the left testicle began to enlarge and become painful. The enlargement began at the lower end and posteriorly. The increase in size and tenderness continued for thirteen weeks, when the disease became stationary.

The testicle was examined by Dr. Keyes and several other gentlemen, and found composed of two distinct portions; the lower and inferior part measuring ten and a half inches around, giving a sense of fluctuation; the upper portion, much smaller, being firm and quite smooth. The cord and seminal vessels were uninvolved. His general condition was much below par; he had some cough at night; there was a loss of appetite, all erotic desires were absent, and he was in a very desponding state of mind. One of the gentlemen thought that the tumor was cystic, and it was punctured accordingly, by an exploring needle attached to a hypodermic syringe. No fluid was, however, extracted. This operation was performed in the latter part of October, before Dr. Keyes came in service. After the puncture the testicle began to enlarge quite rapidly.

When Dr. Keyes took the service, November 1st, the patient was clamorous for the operation of castration. By this time the skin covering the tumor had become reddened, but was not adherent. His appetite was still poor, and his cough became more urgent and distressing. No night-sweats were present. The lungs were examined, not very critically, but a certain amount of flatness and moist râles were discovered on the right side at the apex, which gave rise to a general opinion that the disease of the testicle was tuberculous in character. An operation was accordingly refused; but, the patient

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being still importunate, Dr. Van Buren was asked to see the case, who confirmed the diagnosis, and decided, after explaining the probable results to the patient, to remove the testicle. No examination was made of the abdomen. The question of cancer was discussed; but no enlarged glands, or any other suspicious evidences of the existence of such a disease, being discovered in the inguinal or other glands in the neighborhood, the idea was abandoned.

The operation was performed December 1, 1872. The incision was made in the usual manner, from above the external ring down through the scrotum; and the testicle was easily enucleated. The spermatic and deferential arteries were tied and a ligature was placed around the whole cord. There was very little bleeding from the vessels of the scrotum. The scrotum was sewed up in the usual way.

The patient had a very slight chill, but no considerable disturbance. His appetite began to improve, and everything went well until the thirteenth day, when he complained of great tenderness in the left inguinal region, which soon spread over the abdomen and developed into peritonitis. In the course of twenty-four hours the whole of the abdomen was tender and tympanitic, and he died in forty-eight hours.

The extirpated testicle was found to consist of two portions; the upper hard, the lower soft. The upper and posterior portion was made up, for the most part, of three spots, yellowish white in appearance and hard, looking like foci of chronic inflammation. There were also little cavities, in the upper portion, which were filled, some with cheesy deposit, and others with pure pus. The lower portion consisted of a large number of small cysts, with thickening of the intertrabecular tissue.

Autopsy.—The lungs were healthy, but there was a mass of new growth overlying the pericardium, and attached by one extremity to the inner free border of the upper lobe of left lung. The peritoneum was extensively inflamed. Behind it and a little to the left of the median line, in the upper portion of the abdominal cavity, and overlying the spine, were found two large-sized tumors, evidently taking their origin *in the retro-peritoneal glands.* When cut into, their substance resembled brain-tissue interspersed with more or less cystic growth. The right testicle was found just out-

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side the abdominal ring and entirely atrophied. No microscopical examination of the specimen had been made.

Dr. Krackowizer did not think that there was any connection between the abdominal tumors and the disease in the testicle, which seemed to be purely inflammatory in character.

Dr. Keyes thought, as the disease of the testicle was principally in the secreting portion of the organ, and as it presented in such a marked degree the gross appearance of encephaloid disease, he was inclined to differ with the foregoing opinion. The tumor had not yet been examined microscopically. Dr. Delafield was inclined to agree with Dr. Keyes as to the nature of the tumor in the testicle.

NOTE.—Sarcomas appear in the form of solitary, slowly growing tumors *behind* the peritoneum, or between the folds of the mesentery. They may reach a large size, and by their pressure on the veins and the intestines give rise to thrombosis of the large veins and obstructions of the bowels. They may induce metastatic tumors of the peritoneum and of the viscera. —Dr. Francis Delafield; see also Dr. Heitzmann's case, Vol. I., p. 70.

Drs. Jones and Sieveking say that sarcomatous growths not uncommonly originate in the *post*-peritoneal cellular tissue, just in front of the spine, where they are firmly adherent to the vertebræ. The course of these growths, though rapid, is often for a long time unattended with pain, or disturbance of the system.

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3.—TUBERCULAR PERITONITIS.

CASE 1. By DR. JOHN O. STONE, 1847.—There was a thick layer of tubercles beneath the peritoneum. The intestines and viscera universally agglutinated.

CASE 2. By DR. GEORGE A. PETERS, 1848.—In a negress. There were no tubercles in the lungs. There was merely tympanitis, and a constant desire to urinate.

Autopsy.—All the abdominal viscera were agglutinated, and enclosed tubercular abscesses. The right kidney was large and filled with tubercular matter and pus. There were many tubercular ulcers on the mucous membrane of bladder. There was chalky degeneration of the bronchial glands, and the liver was enormously large.

CASE 3. By DR. JOEL FOSTER, 1849.—In a man, æt. 50. There was clear red serum in the abdomen; the peritoneum was intensely red and mamellonated from tubercles deposited under false membranes. There were no *tubercles in the lungs*. The liver was cirrhosed.

CASE 4. By DR. WILLARD PARKER, 1850.—In a girl, æt. 16, who had no tenderness of the abdomen, which was flat. The bowels were regular, but the pulse very rapid. There was great agglutination of the bowels.

Dr. Alonzo Clark said: Tubercular peritonitis is almost always attended with a considerable amount of fibrinous exudation producing agglutination of the intestines.

NOTE ON TUBERCULAR PERITONITIS.

Although this is one of the best marked varieties of chronic peritonitis, but few specimens have been exhibited before the Society, and none I believe

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of late years. The chief tubercular product is sometimes in the omentum, where it may assume the appearance of yellowish caseous masses, which are apt to be still more numerous on the lower surface of the diaphragm, or near the spleen. The lungs and bronchial glands are often, but not always, affected simultaneously.

The acute form is usually, if not invariably, secondary to some tubercular disease elsewhere, and has a tendency to the fibrous rather than to caseous degeneration.

4.—PERITONITIS.

Case 1.—*The Relations of Erysipelas and Peritonitis.*

By Dr. J. Lewis Smith, May 12, 1875.

Dr. S. presented a specimen from an infant, which died at the age of 7 weeks. It had been in an infant asylum, and was wet-nursed by a woman who was attacked with erysipelas. The child previous to this was doing well, but soon after had a profuse discharge from the bowels, with vomiting, and died within three days.

Autopsy.—The thoracic organs were entirely healthy. On opening the peritoneal cavity about half an ounce of rather thin, curd-like liquid escaped; and about the same quantity of thin, purulent-looking fluid remained in the pelvic cavity. The peritoneum throughout a considerable portion of its extent was congested, and there was fibrinous exudation over the liver and the spleen. The points of interest in this case had reference to the advisability of allowing a child to nurse a mother when affected with the disease in question, and also in establishing the relation between the peritonitis of the child and the erysipelas of the nurse.

NOTE ON PERITONITIS.*

Rokitansky describes a rheumatic peritonitis, but a large majority of cases are due to previous disease in some organ which is covered by the peritoneum. Almost numberless instances appear in the records of the Society in which diseases of the stomach, bowels, liver, spleen, pancreas,

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* See also page 8.

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kidneys, bladder, uterus, and ovaries, have been followed by peritonitis, either local or general, latent or manifest. The peritoneum over irritated parts partakes of the irritation, which may become localized and lead to adhesions; or diffuse and spreading over the whole membrane, followed by a rapidly fatal result. The slow, indistinct manner in which peritonitis sometimes extends, has been well marked in many of our cases, in which the pulse was scarcely over eighty, the pain, tenderness, and tympanitis slight, and the general symptoms insignificant.

The fluids which exude from the vessels in inflammation infiltrate the tissues themselves, which thus become softened and easily torn, and there is reason to believe that in affections of the stomach, bowels, and other organs, minute openings which allow of the escape of irritating gases into the peritoneum often escape notice. Slight lacerations and pinhole-sized apertures are also far more frequent than is generally supposed.

If no local cause can be found for the peritonitis, it is generally the sequel of Bright's disease.

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VII.—DISEASES, ETC., OF THE PANCREAS.

CASE 1.—*Hæmatoma of the Pancreas.—Jaundice.*

BY DR. THOMAS E. SATTERTHWAITE, June 23, 1875.

Dr. Satterthwaite presented a specimen of bloody tumor of the pancreas. The patient was 36 years of age, and a clerk by occupation. His family history was good, and he had enjoyed perfect health until 1867, when he had an attack of jaundice following, as he stated, the abuse of alcohol. He was sick about a month, and shortly after contracted constitutional syphilis. In 1871 he had a second attack of jaundice, which lasted four or five months; and last December a third attack, from which he did not recover. Since the second attack he had been moderate in the use of liquor. On the 20th of May he was received into St. Luke's Hospital, and in the course of a week or ten days he died. Just before admission, on the 17th of May, he scratched his lip, when a stubborn hemorrhage occurred, necessitating the application of mechanical pressure for its arrest. He had been a frequent sufferer from hemorrhage of the bowels, due doubtless to the same diathesis.

His history on admission was as follows: Patient emaciated and deeply jaundiced, but mental condition good, although drowsy; spleen and liver slightly enlarged; urine loaded with bile-pigments; no casts or albumen; no ecchymotic spots anywhere over the body; no appetite; tongue dry and coated; pupils equal. There was no change in his condition, except that he grew gradually weaker, until he died.

Autopsy.—The intestines were in great part healthy in appearance, except that here and there were some ecchymotic spots; while the upper part of the ileum seemed to be of a very livid purple color, for a distance of eleven inches. Between the mucous and peritoneal layers of this portion of intestine there was an extravasation of blood, so that the wall of the bowel was fully half an inch thick. The boundary of extravasation was pretty well marked.

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The opening of the common duct into the duodenum was large enough to admit the end of a little finger; and the hepatic and cystic ducts were both dilated and filled with a yellowish white fluid. There were no signs of inflammation in the neighborhood. The pancreas was crowded well back against the spinal column and contained in its substance a bloody tumor. The spleen was congested, as were also the kidneys and portal system. The lungs were healthy and the arteries free from atheroma.

Dr. Janeway remarked that the patient has been under his observation at Bellevue. When he first saw him his diagnosis was obstructive jaundice. There was no bile in the fæces, the liver was slightly enlarged, and the hemorrhages which occurred afterwards were supposed to be due to the effect of blood-poisoning. As the disease seemed to be obstinate, it was thought that emetics might be of service, and the tenth of a grain of apomorphia was administered hypodermically. The effect was to produce a little bile in the stools for a couple of days afterwards. He believed that the cause of the jaundice as shown after death was primarily due to the disease of the pancreas, which by its enlargement hindered the escape of bile through the common duct; and lastly, an effusion of blood took place in the substance of the organ, and death was the immediate consequence.

Dr. Satterthwaite concurred in Dr. Janeway's views that the extravasations of blood into the pancreas and other tissues, as well as the frequent hemorrhages, were the manifestations of a hemorrhagic diathesis. The history of the case did not show that this condition was due to syphilis or alcoholism; and he was inclined to think that it was due to the presence of biliary salts in the blood.

Case 2. By Dr. James O'Rorke, March, 1855.—Dr. O'Rorke presented a specimen of cancer of the pancreas, taken from a young man 24 years of age, who had always been perfectly well until last spring. When first called to him, Dr. O'R. distinctly heard a bellows murmur over the precordial region, which decreased gradually until the fourth week, when it entirely disappeared. The tumor was mostly situated upon the left side. Dr. Metcalfe saw the

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patient in July, but felt quite uncertain as to the nature of the disease. Another physician saw him in September, and thought he could cure him. He first bled him in the recumbent posture *ad deliquium;* and then gave him a powerful emetic, followed by mercury to salivation. At this stage of treatment Dr. O'Rorke saw him, and continued to visit him until December 24th, when he died.

Dr. Metcalfe remarked that this was a case of unusual interest, on account of the very many adhesions with surrounding organs; and he did not recollect the record of any case where there was so much destruction of the walls of the stomach. He found, on microscopical examination of the specimen, minute elongated cells, a very large quantity of oil-globules, and cells with large nuclei.

Dr. Clark asked if the dissection had been so made that it was sure the pancreas was really the seat of the disease? This organ, he thought, was very seldom the seat of cancerous disorder; but cancer often manifested itself in the areolar tissue, displacing organs which, of themselves, are free from disease.

Dr. Batchelder remarked that he had repeatedly observed pulsation in abdominal tumors to disappear. He asked the cause. Thought such tumors were generally malignant.

CASE 3. By DR. THOMAS C. FINNELL, April 23, 1873.—The specimen consisted of a pancreas, interesting as the seat of extensive and primary cancer. The patient was a woman, aged 50, who had been dyspeptic for years. A tumor was discovered, and a diagnosis of cancer of the stomach was believed in. The mistake was only discovered at the autopsy. The pancreas alone was affected.

CASE 4. By DR. CHARLES E. ISAACS, 1857.—There was *encephaloid* disease of the pancreas in a man, æt. 50, who had chronic pain in stomach, with vomiting. A tumor was discovered in the region of the stomach or pancreas. The liver also was the seat of numerous small cancerous tumors.

CASE 5. By DR. THOMAS C. FINNELL, 1860.—There was *fatty degeneration* of the pancreas in a man, æt. 52. There was a small amount of pus in the region of the head of the pancreas; which organ was three times its natural size, very firm to the touch, and surrounded with fat. There was also fatty degeneration of the pancreas throughout its whole extent.

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CASE 6. By DR. ALONZO CLARK, 1853.—There was scirrhous *induration* of the pancreas in a woman, æt. 37, who had dropsy, scanty urine, and had been tapped six times; once to the amount of twenty-eight pints, of coagulable fluid. She had jaundice for the last ten days, and frequent vomiting.

Autopsy.—The small intestines were congested. The liver much enlarged, hard, and light in color. The spleen was enlarged. The pancreas enlarged and indurated, also involving the common duct, with thickening and induration too of the portal vessels. It was not malignant scirrhus, but a peculiar disease often mistaken for it. Scirrhus does not often commence in the pancreas. The kidneys were large. And small polypi of the pylorus, made up of ducts, vessels, and fibrous tissue, were seen.

Cancer of the PANCREAS *is rare.* More frequently there is cancerous disease of the surrounding areolar tissue. Pulsation of abdominal tumors frequently disappears spontaneously.

CASE 7. By DR. DEWEES, 1855.—The pancreas was fatty, with internal red, pulpy softening, and a peculiar dark appearance externally; in a patient who had passed fatty and jelly-like substances from the bowels.

CASE 8. By DR. BAUER, 1855.—There was *scirrhus* of the pancreas in a woman, æt. 46, who had a pulsating tumor over the cardiac region, which had been mistaken for an aneurism. Swallowing food was attended with a peculiar sound.

Autopsy.—There were nodules, in various stages, in the apices of the lungs. The cardiac orifice of the stomach was contracted by a cancerous deposit; the pyloric was also narrowed. The transverse colon was contracted and adherent to the cancerous mass. The heart was hypertrophied, and surrounded by varicose veins. The spleen was soft; the liver small.

CASE 9. By DR. JAMES R. WOOD, 1857.—There was *cancer* of the distal portion of the pancreas in a lady, who had vomiting, soon after eating, so constant that she prayed for death. For the last four weeks she was nourished by injections. There was no cancer of the stomach.

CASE 10. By DR. THOMAS C. FINNELL, 1857.—There was *cancer*

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of the glands, in the neighborhood of the pancreas, which pressed on the transverse fissure of the liver, preventing the escape of bile. The gall-bladder much dilated. The stomach much attenuated.

CASE 11. By DR. GUSTAVUS A. SABINE, 1847.—There was scirrhus of the pancreas, with encephaloid disease of the stomach.

CASE 12. By DR. JOHN O. STONE, 1847.—*Tubercles of the pancreas* were supposed to be present.

CASE 13. BY DR. JOHN C. PETERS, 1865.

A very small and delicate lady, aged about 50, became dyspeptic, somewhat jaundiced, and emaciated rapidly. As an enlarged gall-bladder could be felt, apparently filled with gall-stones, this was at first supposed to be the disorder. But a hard tumor was discovered in the neighborhood of the head of the pancreas, and scirrhus of the pylorus or of the pancreas was decided upon—probably the latter, as there were fatty discharges with the stools. Then a peculiar fulness and fluctuation over the abdomen was noticed, which followed every motion of the patient, and caused excessive annoyance whenever she turned from side to side in bed. This was only relieved by profuse discharges from the bowels, from purgatives, or by spontaneous vomiting, which recurred profusely every few days. This was conjectured to proceed from an immensely dilated stomach, the contents of which were retained by contraction of, or pressure upon the pylorus.

Autopsy.—By Dr. Gouley, in the presence of Drs. Wm. H. Van Buren and Peters. The gall-bladder was enlarged and contained five large gall-stones. The stomach was immensely dilated, extending down to the pubes, and filled with an enormous mass of fluid food and drink. The pylorus and stomach were otherwise perfectly healthy. The head of the pancreas was the seat of cancer.

Résumé.—The *sex* is mentioned in eight cases, four of which were males, and four females. The *ages* of the males were 24, 36, 50, and 52 years; of the females, 37, 46, and 50 years.

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The disease is described as hæmatoma, once; cancer, in four cases; encephaloid, in two cases; scirrhus, in two cases; fibrous induration, in one case; fatty degeneration, in two cases; tuberculous, in one case; and cancerous, near the pancreas, in one case.

NOTE ON DISEASES OF THE PANCREAS.

According to Dr. Francis Delafield, carcinoma of the pancreas is not common; but it may occur both as a primary and secondary growth. In its *primary* form it usually takes the form of hard, fibrous nodules scattered through the organ; or else, of a uniform scirrhous enlargement. More rarely, colloid cancer and cylindrical-celled epithelial cancer have been observed. The disease may be confined to the pancreas; or may spread to the duodenum, the stomach, or the neighboring lymphatic glands.

As a *secondary* growth, cancer usually invades the pancreas by continuous infection from the duodenum, stomach, or lymphatic glands.

Chronic interstitial inflammation (or cirrhosis) of the pancreas causes the production of new fibrous tissue, with induration, and consequent atrophy of the organ. This contraction of the new fibrous tissue may obliterate the pancreatic ducts, and may also compress the ductus communis choledochus so as to produce jaundice, and even dilatation of the bile-ducts.

Idiopathic atrophy may reach such a degree that the pancreas can no longer be distinguished by the naked eye. Although a moderate degree of atrophy seems to be a regular senile change, yet an extreme degree of atrophy is sometimes found in diabetes, and may occur from fatty degeneration.

Waxy degeneration of the blood-vessels of the pancreas is rare; and it never affects the gland-cells.

Acute suppurative inflammation of the pancreas is so rare, that hardly anything is known about it.

Hypertrophic enlargement is altogether unusual, and when it does occur chiefly affects the cellular tissue, which is interwoven with the glandular.

Fatty degeneration is described by Rokitansky as frequent in drunkards, and as often associated with fatty liver. In extreme cases almost all traces of glandular stricture are lost, and only an amorphous, granular, and oily mass remains.

Jones and Sieveking say that scirrhus and encephaloid are the only forms of cancer which occur in the pancreas; and the head of the gland, where it is embraced by the duodenum, is the point most frequently affected. Rokitansky says that cancer of the pancreas is common as an extension of the disease from a scirrhous pylorus; and the retro-peritoneal glands near the head of the pancreas and the surrounding connective tissue are occasionally

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the seat of a sarcomatous growth, which, becoming closely united with the pancreas and compressing its ducts, has sometimes been described as a disease of that gland, and is functionally the same.

Wilks and Moxon refer to chronic induration of the pancreas; and to tumors which have all the characteristics of true cancer, ranging from the soft and encephaloid, to the hard, contractile, scirrhous form. They call particular attention to those cases in which a small knot of true scirrhus arises in or near the head of the pancreas, drags upon and compresses the bile-duct, and perhaps also the pancreatic duct, leading to tedious, but generally painless jaundice and emaciation.

The pancreas has many lymphatic glands around it, and is not enclosed in a capsule defined by a sheath of peritoneum; so that it is often difficult to decide whether a tumor, partly in its substance, did, or did not originate its proper tissues. This question can only be settled by a microscopic examination of the specimen; for primary cancer of the lymphatic glands is almost always *lymphomatous*, while primary cancer of the pancreas is carcinoma. *Myxochondroma*, so common in the parotid glands, is not found in the pancreas. *Colloid* cancer, when it occurs, involves nearly the whole of the organ; and *tubercle* is never seen, although occasionally the remains of a chronic abscess, in the form of more or less dried and cheesy pus, gives an appearance which might be called scrofulous.

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VIII.—DISEASES, ETC., OF THE LIVER.

CASE 1. *Obscure Disease of the Liver and Spleen.*

BY DR. E. G. JANEWAY, October 13, 1875.

Dr. Janeway presented a small specimen, accompanied with the following history, prepared by Dr. Van Vorst.

Samuel A. Jones, 36, single, a native of U. S., porter, family history unknown; has been accustomed to drink; and had specific disease with secondary manifestations.

He was admitted to Bellevue Hospital, Aug. 28, 1875, complaining of a feeling of coldness, followed by profuse sweating, which would occur every day, about nine o'clock in the morning; but never had a distinct chill. He was becoming weaker and much paler. Lungs and heart normal. Liver and spleen were not examined at this time. Urine, sp. gr. 1014, acid, no albumen; a microscopic examination revealed nothing; quantity normal.

He was placed on large doses of quinine and tinct. of the chloride of iron, but at the end of two weeks there was no improvement. He was becoming more anæmic and weaker. Temperature and pulse both normal. Diarrhœa occurred, but was easily controlled.

A week before his death he complained of "an oppression" in the epigastrium, but examination did not reveal any tumor, nor very marked tenderness. The liver was enlarged, but nothing like hard nodules could be detected. Three days before death Dr. Janeway examined him, and found the liver, and also the spleen, slightly enlarged. He also examined the blood, but found no increase of white globules. Pulse, respiration, and temperature still normal. Urine, sp. gr. 1016, acid, no albumen, quantity natural.

On Sunday, October 3d, he was seen about nine o'clock, and made no complaint of feeling worse, or of suffering any pain. At eleven o'clock A.M., the house physician was called to him, the orderly stating that he had awakened from a sound sleep, complaining of in-

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tense pain in the epigastric and left hypochondriac regions. He was in a profuse perspiration, pulse 120, respiration 34, perfectly conscious, and said "he knew he was going to die." No paralysis existed. Pupils normal. Ten (10) minims of Magendie's solution of morphia were given hypodermically, and hot cloths placed over the site of pain. In ten minutes he said he felt easier, and the house physician left him, thinking that, as the pain was relieved, there was no pressing need of his remaining. On his return at the end of an hour he was told that the patient had died. From the accounts of the patients in the beds near him, there were no convulsive movements, but death took place quietly.

Autopsy.—The brain, heart, and lungs were normal. The liver was markedly enlarged, and scattered throughout the whole of its substance were numerous whitish gray points, from the size of a pin's head to a marble. The lobus spigelii was almost filled with them, half of its substance being so occupied. They produced no induration on the surface. On cutting through the deposit there was a moderately firm resistance, but no whitish juice exuded.

The spleen was half of its normal size, softer than natural, and in its substance was a slightly whitish-looking deposit, here and there. The mesenteric glands were slightly enlarged, as was also the case with the lumbar glands. Peyer's patches, the solitary follicles, and in fact all the other glands of the body, were normal.

A microscopical examination of the liver revealed a new formation, composed of round lymphoid cells, arranged in a reticulum growing in the connective tissue surrounding the portal veins. The spleen was not examined. This lymphomatous tissue also occupied the substance of the kidney. The marrow of the femur was red, but contained very little fat.

In conclusion, Dr. J. spoke of the difficulties attending the diagnosis of this case, the usual signs of the disease being either absent, or so modified in relation to each other as to be of negative value only. It was quite evident from the autopsy that the spleen did not receive that amount of attention that was its due.

Dr. Delafield asked if he (Dr. J.) felt very confident about the changes in the bone-medulla, as that tissue varied very much from the appearances which it presented in health.

Dr. Janeway said that scarcely any adipose tissue was discovered, and the oil-globules were so conspicuously absent that but four or

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five appeared on the microscopic field at one time; the remainder being made up of round cells, and reticular and red globules and vessels. He doubted not that many of these cases were called cancer of the liver; in fact, he had seen one such case which might have been so diagnosticated except for the increase in the white globules.

A short discussion was then held by Drs. Beverley Robinson, Janeway, and Delafield, in regard to the diagnosis between leukhæmia and pseudo-leukhæmia.

1.—CIRRHOSIS OF THE LIVER.

Case 1. *Rare Form of Hob-nailed Liver Caused by Contraction of the Hepatic Cells.*

By Dr. F. Delafield, February 10, 1875.

A specimen, presented by Dr. Delafield, was removed from a man 56 years old, a liquor dealer, who was admitted to Roosevelt Hospital on the 23d of December, 1874. The man had always been a hard drinker; for the last three years of his life an habitual drunkard, and had been in every way a very disreputable person. He had suffered from frequent attacks of headache, loss of appetite, and dyspeptic symptoms; but had been in fair health until four and a half months before his death. At that time, according to his account, he had an attack of typhoid fever. Within four weeks after his convalescence his abdomen and legs began to swell. He also became much emaciated, and had frequent attacks of epistaxis, but no hæmatemesis.

When admitted there was marked jaundice, as well as ascites and œdema of the feet and scrotum. He was tapped for the ascites on January 6th, but with only temporary relief; and tapping was performed again on February 3d, and he died February 7th.

The principal interest in this case was the liver. The history was evidently an ordinary one of cirrhosis; but the organ was very *small* in size, and only weighed about two pounds. Instead of having the ordinary nodular appearance of a cirrhotic liver, *the surface*

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was perfectly smooth, and even the capsule was not very much thickened. It was very evident, however, on looking at the organ even with the naked eye, that there was a very marked increase of fibrous tissue, which had the ordinary character and appearance of new growth. This fact was of some importance in connection with the generally received idea that the ordinary "hob-nailed" liver was caused by the contraction of this new tissue. In this specimen there was no contraction whatever. There was another point of interest, and that was the condition of the hepatic cells. These were hardly diseased at all, the majority having their normal appearance. The fact that the cells were not altered, according to Dr. Delafield's idea, explained the reason why the surface of the liver was *smooth*. He believed that the production of nodular liver was due more to the shrinkage in the cell-element than to the contraction of the new-formed connective tissue. The kidneys were in a condition of chronic Bright's disease.

In connection with the rarity of this condition, he remarked that the cirrhotic livers might be divided into large and small. In the first variety the organ might be nodular or smooth, in the second variety the same conditions might be seen; but it was exceedingly rare to find a small and smooth, red, cirrhotic liver. He mentioned in passing that still another variety of cirrhotic liver was met with which was still more rare. This was of syphilitic origin. The organ was about the medium size, but the fibrous tissue, instead of surrounding the acini, was found to separate the individual cells. He had met but two cases of the kind, one of which had also been examined by Dr. Satterthwaite.

CASE 2. By DR. JOHN A. SWETT, 1850.—There was *cirrhosis* of the liver in a temperate lad, æt. 17.

CASE 3. By DR. WM. H. VAN BUREN, 1850.—He had seen a similar case to the above.

CASE 4. By DR. COLTON, 1850.—There was *cirrhosis* of the liver, in a temperate girl, æt. 21, who had amenorrhœa for several years, and only menstruated twice, in all. She had con-

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stant pain in the head, hypogastrium and lumbar regions; but no symptoms or signs of liver disease. Death occurred from erysipelas.

CASE 5. By DR. THOMAS C. FINNELL, 1856.—There was *cirrhosis* of the liver in a young woman, æt. 22, who had a chronic ulcer on her leg, and suddenly became faint and jaundiced, followed by fluctuation in abdomen. There was no pain, but vomiting of a large quantity of blood.

Autopsy.—Three pints of serum in the abdomen; much coagulated blood in the stomach; no gastric ulcer or other disease. The liver was extensively cirrhosed, reduced to half its normal size, nodulated and firm. The vena porta was filled with fibrinous coagulæ. The hepatic, cystic and common ducts were much contracted.

CASE 6. By DR. BENJAMIN MCCREADY, 1849.—There was cirrhosis in a girl, æt. 18, who had emaciation and jaundice.

Autopsy.—The spleen and abdominal veins were enlarged; the liver extended down to the umbilicus; there was slight dropsy; and chronic peritonitis over the liver.

CASE 7. *Peri-Hepatitis and Cirrhosis—A Question of Etiology.*

BY DR. A. L. LOOMIS, November 8, 1876.

Dr. Loomis presented a liver from a lady 34 years of age, who came under his observation in November, 1874, when the patient stated that, as far as she knew, there was no hereditary tendency to disease in her case. She had always been healthy until two years ago, when she moved from the western part of the State to West Farms, where she contracted intermittent fever; from which she still suffered, having chills and fever every two or three weeks during the entire period which had elapsed up to the time of the Doctor's first visit. During all that time she had been treated with quinine and arsenic, but without other than temporary relief. In March she suddenly became jaundiced, and so deeply that she

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said the surface of the body looked like an orange, and continued so about two months, during which time she had distinct chills, fevers, and sweats. About the 1st of June she noticed that she was losing flesh and strength rapidly, and by the 1st of August she was unable to get out of bed without assistance. The jaundice entirely disappeared about the 1st of June, when she also noticed, for the first time, that her abdomen was somewhat swollen. The swelling rapidly increased, and by the last of August she was so large that it was troublesome for her to move about. She was then advised to visit Richfield Springs, and was carried there upon a mattress. Very soon after she began to improve; regained her appetite, improved in strength, and at the end of four weeks all the swelling of the abdomen, which had been supposed to be dropsical, disappeared. Her general health improved so much that she flattered herself that she was nearly well, when she took cold, had a coryza and some bronchitis, lost flesh and strength, the paroxysms of intermittent fever returned, and the abdomen increased again in size quite rapidly. Having seen a large number of physicians and received various opinions with reference to her case, but obtaining no relief, she came to this city for aid.

Her abdomen was very large, contained fluid, and presented the ordinary appearance of advanced ascites. She vomited almost all her food. The paroxysms of fever occurred every three or four days, distinctly intermittent in character. The patient was tapped, and examination immediately after the operation disclosed the fact that the liver was very much diminished in size. The other organs of the body, as far as it was possible to reach them, were supposed to be in a healthy condition. The urine gave no evidence of renal affection. She had never taken stimulants, or suffered from any form of trouble about the liver, as far as she knew, until the occurrence of the jaundice. She was placed upon cod-liver oil, iron, etc., and improvement in her condition soon began; the stomach retained food; she gained in strength and flesh somewhat, but the fluid returned quite rapidly, so that by the middle of December it was thought tapping would again be necessary. To the surprise of all, however, the abdomen began to diminish in size, and lessened very quickly, so that by the middle of January the fluid had almost, if not entirely disappeared, and she was apparently far on towards complete convalescence. The improvement continued so marked

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that Dr. Loomis discharged her as a regular patient; but about the first of March she took cold again; had a coryza and bronchial catarrh; complained of some pain over the region of the liver, and fluid again accumulated in the abdominal cavity. She lost flesh and strength, the paroxysms of intermittent fever returned, and about the 1st of May it became necessary to tap her a second time. She did not rally as well as after the first tapping, and by the 1st of July it became necessary to perform the operation the third time. At each tapping, from twenty-seven to thirty-four pints of fluid were removed. It was clear, contained no floccules of lymph, and, as far as it was possible to determine, had all the characteristics of fluid found in the abdominal cavity in connection with cirrhosis of the liver. After the tapping in July, the patient improved somewhat, but by the middle of November the abdomen was larger than ever, and her general condition was worse, if possible, than it had been at any time during her entire sickness. She was again tapped, and the fluid did not return to much extent, if at all, and by the middle of December her strength and flesh had so increased that she was again discharged as a regular patient. She continued to improve, and the case was regarded as one in which a most remarkable cure had been effected. During all this time the treatment was tonic; at no time was resort had to diuretics or hydragogue cathartics, or calomel, or large doses of quinine. About the 1st of May she was again seen, when she appeared well, and there had been no return of the swelling. About the 1st of June, Dr. Loomis was called to her on account of an attack of hematemesis, one attack of which was rapidly followed by others, and at the end of four or five days the patient died of exhaustion.

Autopsy.—The liver was much smaller than normal, and the capsule greatly thickened. All through the substance were evidences of marked increase of connective tissue—the cut surface presenting the appearance of ordinary cirrhosis with degeneration of liver-tissue. The surface of the organ was smooth rather than lobulated, and apparently the primary and greatest change in the connective tissue was upon the surface; the secondary change being in its substance. The stomach, pancreas, and liver were all quite firmly bound to each other by old adhesions, but there was no evidence of peritonitis at any other point than that indicated by the connective tissue increase over the liver itself.

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If the fluid in the abdominal cavity was the result of peritoneal inflammation, the peritonitis was a localized one; and at no time did the fluid withdrawn contain any floccules of lymph or any inflammatory product.

If the case was one of pure cirrhosis, it must be regarded as interesting, *first*, from its origin, and *second*, from its course; the patient making several recoveries to apparent health, which were followed by a return of the dropsical accumulation. The relapse in each instance was preceded by an attack of coryza and bronchial catarrh, some pain over the liver, and then followed a rapid accumulation of fluid in the abdominal cavity. From the early history of the case it would seem that the first thing that attracted attention to the liver was an acute attack of jaundice, unaccompanied by any symptoms which would lead to the suspicion that it was caused by biliary calculus. It was a jaundice that pointed rather to a catarrh of the gall-ducts as its cause.

Might not the jaundice, then, have been produced by an obstruction in the bile-ducts, in consequence of simple catarrh occurring in a liver already hyperæmic as the result of chronic malaria; and might not an inflammatory process be superinduced in connection with these changes? That being the case, might not the connective tissue changes have been preceded by thickening and contraction of the covering of the liver, and a gradual extension of that change along the transverse fissure and portal canals, until the organ became very thoroughly the seat of connective tissue degeneration? To Dr. Loomis this seemed to be the only reasonable explanation. The case had been regarded as one of cancer, chronic peritonitis, ovarian tumor, etc., but after the first tapping he was satisfied that it was one of cirrhosis of the liver. When this diagnosis had been made there remained a doubt with regard to the cause, but the influence of alcohol could be positively excluded.

Dr. Mary Putnam-Jacobi believed that there was no question with regard to the cirrhosis being developed from the perihepatitis, for that was a very common cause; but she thought a link had been dropped in arriving at the conclusion that the catarrh of the bile-ducts and jaundice had been caused by the perihepatitis. It seemed to her that the catarrh should be explained in some other manner.

Dr. Loomis remarked that he had been misunderstood with

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reference to the catarrh of the bile-ducts being caused by the perihepatitis. Early in the case there was pain and tenderness over the region of the liver, and at the time of the occurrence of the jaundice a question arose with reference to the probable co-existence of perihepatitis, malarial congestion, and jaundice.

Dr. Loomis further referred to a point of interest in his case. A few years ago Dr. Murchison stated that waxy degeneration of the liver was of quite frequent occurrence in connection with chronic malarial poisoning. At that time Dr. L. had under observation a case of ascites, associated with chronic malarial poisoning, and he made the diagnosis, based upon the statement of Murchison, that there was waxy degeneration of the liver, with ascites as the result. The patient died, and at the autopsy no waxy degeneration whatever was found, but there was present just such a cirrhotic condition of the liver as seen in the specimen presented, but without any history of jaundice.

With regard to the jaundice in his present case, it had no necessary connection with the perihepatitis; but, as it occurred at the time the first pain over the liver was felt; and as the hepatic pain appeared in connection with paroxysms of intermittent fever; it would seem that there might be some connection between the two causes, which would in part explain the development of an inflammatory process throughout the substance of the organ.

Dr. A. H. Smith inquired whether the paroxysms of intermittent fever were relieved by quinine.

Dr. Loomis replied that they were not entirely controlled by it.

Dr. Beverley Robinson asked whether there was not ancient pleuritis in Dr. Loomis's case. He had seen cases in which there had been pleuritic trouble, and a thickened condition of the covering of the liver, accompanied with intermittent paroxysms of pain and fever. Pleurisy was the original disease, and perihepatitis had been developed secondarily. He regarded it as impossible to differentiate between perihepatitis and pleurisy upon the right side without resorting to puncture of the chest.

Dr. Loomis replied that there were no evidences of pleurisy in his case, and that he regarded it an easy matter to make a differential diagnosis between perihepatitis and pleurisy without puncture.

Dr. Putnam-Jacobi directed Dr. Loomis's attention to the fact that a calculus was present in the gall-bladder.

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Dr. Loomis had recognized its presence, but doubted whether it had anything to do with the production of the jaundice.

NOTE ON CIRRHOSIS OF THE LIVER.

This is generally regarded as a chronic interstitial hepatitis, consisting essentially in a hypertrophy of the connective tissue, with more or less degeneration of the parenchymatous substance.

Two forms are generally recognized, viz.: 1, the granular and contracted form, or so-called cirrhotic, although this term is derived from *cirros*, viz., orange-colored, or tawny, *i. e.*, some color between red and yellow.

2. The smooth variety, which sometimes can only be recognized by the microscope. In the first, or ordinary cirrhosis, the liver is small, pale, contracted, and puckered, so as to resemble a collection of little, hard granules, pellets, or knobs, which are yellowish or bile-stained and project on the surface. These coarse globules consist of parenchymatous substance, and are capsulated by firm fibroid substance which extends through the whole liver and gives it a remarkable degree of firmness and density. This fibroid substance is a new formation which is highly vascular at first, and then contracts or shrinks so as to draw in the surface at various points, and thus produce the well-known nodulated, granulated, or hob-nail condition, which is so well known.

This contraction also affects the blood-vessels of the liver, which are ensheathed in the normal state by fibrous tissue, which partakes of the general affection; and thus they are pressed upon and narrowed so that they convey much less blood. The portal current becomes obstructed, and the congested capillaries relieve themselves by effusion of serum into the peritoneal cavity, causing abdominal dropsy, from obstruction of the blood-vessels in the liver.

In the second or smooth variety, the liver is firm and dense from an increase of fibroid, or cicatricial tissue, but its surface is not puckered. It may either be pale, or congested; and is often very considerably enlarged. The Glissonian sheaths are thickened, so as to press upon and cause atrophy of the lobules; and are also thickly infiltrated with small cells, or nuclei.

In the early stages there is effusion of serum and exudation of lymph-corpuscles into the fibrous tissue, causing hypertrophy, without condensation.

The principal causes are the excessive use of alcohol, and obstructive cardiac disease.

The usual effects are congestion of the whole portal system, swelling of the spleen, abdominal dropsy, catarrh, and sometimes hemorrhage of the

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stomach, congestion of the bowels with diarrhœa, and enlargement of the collateral veins.

When dropsy does not occur, the collateral circulation through the suprarenal and azygos veins is greatly developed.

NOTE ON PERIHEPATITIS.

According to Dr. Francis Delafield, the capsule of the liver and its prolongations along the vessels are frequently inflamed. In some cases the entire capsule is very much thickened, the liver becomes small and compressed, and the symptoms are those of cirrhosis. Chronic phlebitis and hard thrombi of the hepatic veins may be produced by perihepatitis. The walls of the veins become thickened; and gelatinous deposits or valve-like projections on the inner surface of the veins may narrow, or even obliterate them, leading to apoplexies in the tissues of the liver.

CASE 8. *Rare Waxy Nodule of the Liver.*

BY DR. EDWARD G. JANEWAY, June 9, 1869.

A man, aged 38, had suffered for six months with cough, dyspnœa and pain in the left side. His legs became œdematous, his urine contained albumen, he grew delirious and died.

Autopsy.—Brain and membranes normal. The heart weighed twenty-four ounces, the aortic valves were thickened, and in the left ventricle were two thrombi with softened centres. The lungs contained a number of pulmonary apoplexies and lobular hepatizations. The liver was covered with old adhesions; the left lobe was enlarged, the right lobe was lobulated and fissured; and on the upper surface of the liver, above the gall-bladder, was an irregular, white nodule about two inches in diameter. This nodule was separated from the liver by fibrous tissue, and it consisted of large, pale, wavy cells, resembling liver-cells hypertrophied. Only two other cases have been recorded, although general waxy degeneration of the liver is very common.

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2.—ABSCESSES OF THE LIVER.

CASE 1. *Extensive Abscesses of the Liver.*

BY DR. J. W. S. ARNOLD.

Dr. Arnold presented a specimen of abscess of the liver, with the following history:

Bridget McCoy, aged 45; widow; born in Ireland; occupation, domestic. Admitted to the Bellevue Hospital, Oct. 22, 1872. Her father died of asthma, her mother of spitting of blood and dropsy, and a brother suffered from struma. The patient began to menstruate at fifteen years of age; had given birth to fourteen children, and never had a miscarriage. Was always a healthy woman up to last Easter, when her menses ceased. Since then she has suffered from indefinite ailments, frequently from headache, dizziness, and singing in the ears. Has had vomiting and diarrhœa; but no swelling of the limbs or face. For three months at least, has had severe pain in the back, which disappeared and recurred irregularly. Never noticed anything wrong with her urine. About twelve months ago, after a hard day's work, she felt very unwell from severe headache and pain in the back. Had no chills, but febrile sensation; but vomiting came on and persisted. The next day she was attacked with diarrhœa, which has continued ever since. On 18th Oct. (four days before admission into the hospital) she was seized with a violent cough, and expectorated viscid, white matter, with severe pain on the *right* side of the abdomen.

Her habits have been temperate; since her menses ceased has had frequent attacks of epistaxis, which still persist.

Oct. 25th. There is tenderness in the epigastrium, all over the *right* hypochondrium and upper part of the right inguinal region. The superficial veins of the abdomen are prominent. Oct. 26th. Complains yet of pain on the right side; diarrhœa continues; A.M., pulse 104, respiration 28; temperature 101°; P.M., pulse 116, respiration 28; temperature 100½°. Oct. 27th, A.M., pulse 120; respiration 28; temperature 101°. Oct. 28th, A.M., pulse 112; respiration 28; temperature 100¾°. Diarrhœa still continues.

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Oct. 23d, urine, specific gravity 1,012, acid; of albumen a trace. Oct. 28th, urine, specific gravity 1,012, acid; of albumen a trace. Oct. 29th, diarrhœa continues; physical examination shows bronchitis. Nov. 1st., A.M., pulse 132; respiration 48; temperature 98½°; patient very weak. Physical examination shows the presence of fine râles all over the right side of the chest behind, with dulness on percussion. Died at 4.05 P.M.

CASE 2. By DR. J. W. S. ARNOLD.—A second specimen also of extensive abscess of liver was presented, with the following history:

Henry Overton, æt. 32, born New York, admitted to hospital Nov. 8th, nearly pulseless. Complained only of pain in the right hypochondrium. Died on the night of the 8th.

In this case there was nothing particularly interesting connected with the autopsy, with the exception that there was some peritonitis. The abscess occupied the whole of the right lobe, extending into the left one.

CASE 3. *Hepatic Abscess.*

BY DR. J. LEWIS SMITH, October 23, 1872.

Dr. Smith presented the anterior portion of the left lobe of the liver, from a boy who died October 15th. Two years before his death, when in the country, he was severely injured by a fall, which fractured his left humerus and bruised his body. His convalescence was satisfactory, and he was apparently entirely well till the disease commenced of which he died. On Saturday, October 5th, he played in the Central Park with other boys, and on the following day went to Sunday-school, appearing well and having his usual appetite. On Monday, October 7th, he went to the public school, and complained of headache, had epistaxis, and seemed feverish. He ate but little on returning from school, and was restless during the following night. On Tuesday, the 8th, he was feverish, and had pain in the head and epigastrium. The latter was prominent, as if from an abscess or tumor underneath,

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and tender on pressure. There was no vomiting, and the bowels were opened by a purgative. There was little or no meteorism, and the pain and tenderness were limited to the epigastrium.

From the 8th to the 13th there was no new symptom, but the patient had become progressively worse. The pain was more acute, and the tenderness had extended over the upper part of the abdomen. The features were pallid and expressive of suffering. The pulse was over 140, and feeble; bowels constipated, and this day, for the first, vomiting occurred. The upper part of the abdominal cavity was somewhat distended with flatus, and was the seat of severe pain, which elicited moans. The diagnosis of peritonitis was easy; it had evidently commenced in the upper part of the abdomen, and was rapidly approaching a fatal termination. Death occurred on the 15th.

Autopsy.—At the epigastrium, the anterior part of the left lobe of the liver was attached to the abdominal parietes in front by recent adhesions, over a space, perhaps, of two inches in diameter. On separating the adhesions, about two ounces of thick pus escaped from an abscess in the liver at this point. The abdominal wall over the abscess seemed perfectly healthy, presenting no appearance of contusion. The surface of the left lobe of the liver was covered in its anterior part, above and below, by a thin and soft fibrinous exudation, which could also be traced a little distance upon the adjacent viscera. The liver, except in the immediate vicinity of the abscess, seemed healthy, as did also the vessels entering the liver. The other abdominal organs showed no evidence of disease. The walls of the abscess, examined by the microscope, were found to contain a large amount of connective tissue, the result of inflammatory action; numerous nuclei of this tissue and of the hepatic cells; and hepatic cells undergoing disintegration. The surface of the abscess, examined after the pus had escaped, presented a grayish, uneven appearance, lacking the hyperæmia which is common in the walls of recent abscesses.

Remarks.—The cause of the abscess and its location are the points of chief interest in the above case. Statistics show a great preponderance of abscesses in the right lobe of the liver over those in the left lobe; and, when an abscess occurs in the left lobe, we ordinarily also find one or more in the right lobe. The common cause of hepatic abscess in this climate is some inflammatory and

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ulcerative disease in one of the organs from which the portal vein arises. The hepatitis in these cases is embolismal, resulting from softened thrombi intercepted in the capillaries of the liver; and the abscesses are more frequently multiple than simple. In looking over the recent transactions of the London Pathological Society for a period of five years, I find the histories of nine cases of hepatic abscess, having the following causes:

	Cases.
Gastric ulcers	2
Ulceration in the large intestines	3
Gangrenous ulceration of the urethra and bladder	1
Ulceration in the appendix vermiformis	1
Ulceration through the cystic duct, from gall-stones	1
Unknown	1

Suppurative hepatitis resulting from injury is known to be very rare; but in the case which I have related there can be little doubt that the abscess was traumatic; and hence its unusual location, which was in the injured part. Lesions in the portal system, such as usually give rise to hepatic abscess, would hardly have escaped my notice if present; besides, there were no symptoms of such lesions. The boy, when questioned, could recollect no serious injury since the fall two years ago; but, as he attended one of the public schools, where the plays are notoriously rough and exciting, it is not improbable that he may have received a blow in the epigastrium which he had forgotten. It is the opinion of the curators of the Bellevue Hospital who have examined this specimen, and who see the lesions of this disease more frequently than any other physicians in this city, and probably country, that the abscess was not recent. They base this opinion on the amount of fibroid induration in the surrounding parenchyma, and the slight hyperæmia. It seems, therefore, that this abscess had been latent for an undetermined period, and that symptoms only occurred when it approached the surface and gave rise to peritonitis.

I have been taught by this and other cases not to manipulate, or to manipulate very cautiously, suspected abscesses in the abdominal cavity, or deep in the walls of the thorax or abdomen, since their rupture internally is almost necessarily fatal; and they may in time, under proper sustaining and palliative measures, discharge externally, or upon one of the mucous surfaces. The treatment in

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the above case consisted in leeching, moderate counter-irritation, poulticing, the use of opiates, and finally of sustaining measures.

CASE 4. *Multiple Abscesses of the Liver; Obstruction of the Ductus Communis, by a Gall-Stone.*

BY DR. JAMES L. BANKS, November 25, 1874.

S. D., æt. 55, Scotch, widow, was admitted into the Presbyterian Hospital, November 17, 1874, in the service of Dr. Banks.

She was perfectly well until nine weeks ago, when she was taken with so-called "chills and fever," and has had chills irregularly ever since, the last one having occurred three days ago. For the past six weeks she has had jaundice, with pain over the liver; and for the past four or five days, a dry cough, with hoarseness, and has been very feverish.

Upon admission, November 17th, she was quite stupid, and her statements concerning her illness were too variable to be satisfactory. She complained of headache, pain about the liver, had a poor appetite, and was feverish. The entire surface of the body was of a brilliant saffron color. Pulse, temperature, and pupils normal. Has a dry cough, and is at times very hoarse. Skin dry; breath foul; tongue parched; pharynx inflamed, and covered with dirty greenish exudations; bowels confined. Urine normal in quantity, but containing bile-pigment, bladder- and vaginal-epithelium, a trace of albumen, and a considerable number of epithelial and granular casts; reaction acid; specific gravity 1013.

Physical Examination.—Heart and lungs normal; spleen and liver considerably enlarged—the liver in a direction upward and to the left, but it is not felt below the free border of ribs. There was a good deal of tenderness over the liver.

November 29th.—Is too weak to sit up. Has considerable dyspnœa and increased hoarseness. Complains of pain about the liver. No change in the physical signs. Morning temperature, 101.7; pulse, 120; respiration, 36. Evening temperature, 99.7; pulse, 92; respiration, 38.

Nov. 30th.—Is weaker. Still complains of hepatic pains, and of

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dyspnœa. Morning temperature, 100.2; pulse, 120; respiration, 42. Evening temperature, 101.5; pulse, 96; respiration, 38.

Nov. 31st.—Stupor increased, but she can still be roused. Dyspnœa increased. Coarse moist râles can be heard over the entire chest. No fever. Was unable to swallow. Died at 3 P.M.

Autopsy.—The entire surface of the body was of a bright saffron color. The body was well nourished. The pericardial sac was pretty well distended, with a clear, serous fluid. Both lungs were bound down quite firmly by adhesions; and there was hypostatic congestion of the lower lobes on both sides, but otherwise they were normal. The liver was much enlarged and of a mottled color, reddish, yellowish, and brownish in spots. About two ounces of very slightly turbid serum were removed from the pelvic fossa. The kidneys were enlarged, the right weighing eight ounces, and the left nine and one-quarter. In both the cortices were thickened; the markings in the cortex were wavy, and the color of a yellowish brown. The capsules in both were adherent. The spleen was large, weighing seventeen ounces, and its color was of a uniform deep purplish brown. Having reason to suspect biliary obstruction, the ductus communis was explored from the duodenum, and about half an inch from the entrance the probe met with a resisting body, which proved to be a calculus about the size of a filbert. Behind it were several smaller ones, and posterior to them a collection of pus. The largest calculus lay immediately over the entrance of the pancreatic duct. The abscess seemed to have ruptured the walls of the duct, forming a cavity about the size of a hen's egg. There was also some ulceration at the orifices of the hepatic ducts. The vena porta and vena cava seemed to have sustained no damage. On opening the liver it was found to be the seat of numerous abscesses, varying in size from the head of a pin to a pullet's egg. The matter was offensive and of a creamy color, not bile-stained. The pus was contained in capsules; in some places there were collections of fluid of a dirty brownish color, which escaped from cysts. The entire liver was much disorganized and offensive. The brain was examined, but nothing abnormal noticed except congestion of the meninges.

On microscopical examination of the liver it was at first thought that the abscesses could be traced to a connection with the portal system of the vessels; subsequently, however, it was found that the

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most noticeable changes were an enormous distention of the biliary ducts, thickening of their walls, with an increase of the surrounding connective tissues, and augmentation of the cells. The ducts were pretty uniformly tortuous, dilated, and often sacculated; containing in their interior sometimes granular matter, and at other times small round cells. In many instances the material around the ducts was breaking down, and it seems, accordingly, that here was the commencement of the abscesses. The capillaries were also in many places filled with red corpuscles, giving rise to the red color. There was but little fat in the liver, and the cells were pretty deeply stained with bile-pigment. The calculus was found, by examination under the microscope, to contain cholesterin. The larger vessels, both of the portal and hepatic system, were generally empty.

CASE 5. *Abscess of the Liver.*

BY DR. CHARLES M. ALLIN, May 12, 1852.

From a negro, who for eight months had suffered from hectic fever, night-sweats, hæmoptysis, and purulent expectoration.

Autopsy.—The liver was adherent to the diaphragm; the right lung was also attached to the corresponding upper surface of the diaphragm, and there was an abscess in the right lobe of the liver, communicating through the diaphragm with the bronchi of the right lung.

CASE 6. By DR. MCCREADY, October 24, 1854.—From a man who had been suffering from chronic diarrhœa, and died with symptoms of peritonitis.

Autopsy.—There was extensive ulceration of the mucous membrane of the large intestine, evidences of acute peritonitis, and a large, solitary abscess in the liver, containing a pint of pus.

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CASE 7. *Abscess of the Liver and Bright's Disease.*

BY DR. ALFRED R. LOOMIS, 1863.

Dr. Loomis presented a specimen of abscess of the liver, from a man forty years of age. He simply gave the history that he commenced to grow weak and emaciated about seven weeks before, and that since then he had been gradually failing. He lingered a few days and died.

Autopsy.—All the organs of the body were healthy, with the exception of the liver and kidneys. The former organ was cirrhosed slightly, and at the posterior and inner surface of its right lobe there was a cavity containing three or four ounces of a tenacious, semi-fluid substance, having some of the characteristics of pus. The wall of this cavity was on one side formed by the kidney, the capsule of which was abnormally thickened, while the organ itself was the seat of fatty degeneration.

CASE 8. By DR. THOMAS COCK, 1850.—There was an abscess of the liver in a Southern woman, æt. 26, who had had intermittent fever eight years ago. After an operation for hæmorrhoids, she had chills, followed by heat and perspiration for five consecutive nights; then vomiting, pain in the right side, and death.

Autopsy.—There was lymph on the convex surface of the liver, and an abscess in the right lobe, containing two ounces of pus. Its cavity was lined with false membrane.

CASE 9. DR. ALONZO CLARK, in 1850, presented a case of abscesses of the liver, connected with dysentery.

CASE 10. By DR. JOHN A. SWETT, 1851.—There was an abscess of the liver. There had been no chills or sweats, although the quantity of pus was large.

CASE 11. By DR. JOHN A. SWETT, 1851.—There was suppurative inflammation of the liver, with thirty abscesses in the substance of the right lobe. There was no pus in the veins, but great enlargement and thickening of all the ducts, which were also filled with inspissated bile. There had been fever of a remittent type, with

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perfectly regular chills. Two similar cases were seen in the New York Hospital during the previous year.

CASE 12. By DR. THOMAS COCK, 1850.—There were five abscesses in the liver. The gall-bladder was extensively ulcerated. There had been no diarrhœa, and the symptoms were inconsiderable.

CASE 13. By DR. BENJAMIN MCCREADY, 1850.—The liver was enlarged, extending down to the umbilicus, and attached to the ribs by long, fibrous threads. An abscess containing two quarts of pus was situated between the proper capsule of the liver and the peritoneum. In a woman, æt. 33, whose menses had stopped, and she thought she was pregnant. The abdomen enlarged, and her feet swelled, but the uterus was found small and empty, and the liver large.

CASE 14. By DR. WM. H. VAN BUREN, 1848.—There was much fluid in the abdomen—first clear, then yellow, and finally pus—coming from a large cavity in the right hypochondrium, beneath the liver and bound in by peritoneal adhesions. A large abscess on the under surface of the liver, near the gall-bladder, had opened into the cavity of the peritoneum. The liver was in the last stage of cirrhosis; the nodules were large, irregular, and scattered.

CASE 15. By DR. WM. W. JONES, 1848.—There was an abscess of the liver, which had perforated the diaphragm and lung and opened into a bronchial tube, in a man æt. 42, who had acute hepatitis three months before, with jaundice, severe pain in the right side, dark urine, bilious stools, and pain. He was sick for three weeks, then was convalescent for four weeks, but remained weak and jaundiced. Then sudden pain in the right side set in, followed by cough, oppression, profuse expectoration, and death.

Autopsy.—There was extensive effusion into the abdomen. The liver was large and adherent to the abdominal walls and neighboring viscera. An enormous abscess, formed partly by the liver and in part by the lungs, as most of the diaphragm had sloughed away, had opened into a bronchus. *No rigors had occurred.*

CASE 16. By DR. ALONZO CLARK, 1857.—There were secondary abscesses of the liver, following dysentery, in an intemperate man

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æt. 40, who had had no jaundice or other signs of liver-complication, but eight or ten purulent evacuations per day. He had a chill with pain and tenderness over the somewhat tympanitic abdomen. Opium treatment was followed by suppression of urine for fifty hours before death.

Autopsy.—There were large ulcerations, principally in the upper part of the colon, the mucous membrane of which was thickened and discolored from the presence of hæmatoidine. The liver was large, with an abscess in the left lobe, about five inches in diameter. A second abscess was found in the inferior and middle portion of the liver, just to the left of the gall-bladder, and extended through to its anterior surface. He had had a similar case in the next bed, in the same hospital-ward, dying two days after. Also two cases of pyæmia in women during the same week.

CASE 17. By DR. JAMES O. RORKE, 1853.—The left lobe of the liver was four times as large as the right, and on it there was the cicatrix of a large abscess. Death occurred from Bright's disease and pneumonia.

CASE 18. By DR. BENJAMIN MCCREADY, 1848.—There was an old obsolete abscess of the liver extending to the diaphragm and containing one ounce of white, paint-like material, almost chalky, with some pus and fat-globules.

CASE 19. *Syphilitic Abscess of the Liver.*

BY DR. DEWEES, 1855.

There was a small cavity, with a mass, in the larger lobe of the liver, like half an ounce of concrete pus; with slight induration around it, and a mark like that of a cicatrix. There were also two smaller cicatrices. The gall-bladder contained fifteen black, stellate concretions. In a syphilitic patient, who once had had all the signs of hepatic abscess, and discharged blood and pus from the bowels, but recovered.

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CASE 20. By DR. THOMAS M. MARKOE, 1847.—There was an abscess in the liver, and also one over the sacrum.

CASE 21. By DR. JOHN T. METCALFE, 1849.—There was an abscess of the liver apparently following ulceration of the rectum, and of a pile.

CASE 22. By DR. ALFRED L. LOOMIS, 1860.—The left leg was œdematous, with a large varicose ulcer occupying two-thirds of its anterior portion; also an abscess on the left lobe of the liver. There was infiltration of pus along the veins and cellular tissue of the leg.

CASE 23. By DR. ALFRED C. POST, 1861.—There was an abscess of the liver opening into the thorax and lungs, causing purulent expectoration; followed also by perforation of the bowels and purulent discharges from them.

CASE 24. By DR. THOMAS C. FINNELL, 1855.—There was an abscess of the liver containing a pint of pus, in a man with obstinate diarrhœa, who died of peritonitis, with ulceration, without perforation of the intestines. The walls of the abscess were old and very thin, and would soon have opened through the diaphragm into the lungs; if severe peritonitis had not set in, probably starting from the walls of the abscess.

CASE 25. By DR. ALONZO CLARK, 1857.—There was an abscess around the ductus communis, containing pus, serum, and biliary calculi. The ductus communis had been perforated, as was evident from the line of cicatrization; but the patient had enjoyed good health for a long time after the attack, although a tumor of moderate size could be detected beneath the liver. An attack of peritonitis was followed by death, and it was found that this abscess had ruptured into the peritoneal cavity.

CASE 26. By DR. JOHN T. METCALFE, 1853.—There were two abscesses of the liver which did not communicate, but produced a creaking sensation on pressure.

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Résumé.—The *sex* is mentioned in thirteen cases: four were females, aged 33, 36, 45, and 55 years; nine were males, one aged 32, two aged 40, one aged 42; the rest adults, except one boy.

As regards the causes: one case arose from injury; two were connected with gall-stones; one with ulceration of the gall-bladder; three with ulceration of the bowels; two with ulcerated hemorrhoids; two with dysentery; one with an abscess over the sacrum; one with a varicose ulcer of the leg; and one was syphilitic.

NOTE ON ABSCESSES OF THE LIVER.

These may arise from blows received over the liver, but are generally pyæmic, especially from a local pyæmia affecting the portal veins in connection with tropical dysentery; although Dr. Waring says that in 300 cases of hepatic abscess which proved fatal in India, only one-fourth had been preceded by symptoms of dysentery. Murchison says hepatic abscesses are apt to be single and large; while pyæmic hepatic abscesses are generally small, multiple, and scattered about near the surface.

Hepatic abscesses are also not very infrequent after injuries of the head, or may be co-existent with pyæmic abscesses on the lungs and joints. A large number are also *embolic;* a portion of clot from some vein in an ulcer, seated elsewhere, is carried into a branch of the portal vein, where it lodges, cuts off the blood supply of the part, which then disintegrates.

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3.—PORTAL PHLEBITIS—PYÆMIA OF THE LIVER; SUPPURATIVE HEPATIC PHLEBITIS; ERRATIC, OR SUPPURATIVE INTERMITTENT FEVER.

Case 1. By Dr. Israel Moses, November 12, 1845.

Dr. M. exhibited the vena porta, inflamed throughout its entire length, and filled with pus and coagulæ, from a female patient in the New York Hospital, the diagnosis of which had been made by Dr. John C. Peters.

The patient was aged 32, of temperate habits, and became jaundiced after a fit of passion; and twenty-four hours after was attacked with fever, followed by swelling of the feet, ascites, and prominence of the veins of the abdomen. After getting wet she became delirious, and was admitted into the hospital in a state of collapse. She was emaciated, her skin yellow; she had vomiting and diarrhœa of dark green and bloody stools, and died in three days.

Autopsy.—The liver was much enlarged; the spleen decidedly so, with old coatings of lymph upon the peritoneal surfaces of both. The liver was coarsely granular, and marked with ochre-colored spots. The minutest veins of the liver were hardened, thickened, and filled with firm fibrinous masses. There was ascites; the intestines were covered with a thin layer of old lymph; and there was effusion into the pleuræ.

Dr. J. C. Peters remarked that Schoenlein, of Berlin, had reported eight or ten cases, but had succeeded in diagnosing one only, and that he had been present in Berlin when this first diagnosis was made.

Drs. Peters, Roberts, and Isaac E. Taylor were appointed a committee to report on the subject.

Case 2. By Dr. John A. Swett, 1851.

The well known and beloved Dr. John Kearney Rodgers had been well, with the exception of some diarrhœa for a year, up to

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October 9, 1851, when he awakened at midnight feeling cold, followed by a slight chill, nausea and vomiting of several mouthfuls of bile. He then slept till morning, when he complained of some uneasiness in his right side and pain in the bowels, although he did not wince upon pressure upon these parts. He had some fever and a coated tongue, and as he had been attending a case of bilious remittent, or typho-malarial fever in the country, he was supposed to have a slight bilious fever. His skin became dingy, and he was decidedly jaundiced on the 15th, although he did not evince the least pain when pressed upon, or kneaded, or from turning in bed, or rising up, or lying down. Bilious pills acted well and he felt better, though the sallowness had increased. He soon became restless, sleepless, depressed in spirits, with an anxious expression, some fever, and occasional moderate perspirations. From the 19th to the 23d, *rigors* commenced at irregular intervals, sometimes in the night, or at any hour in the day, with a pulse from 95 to 120, although generally 110. At first there were only one or two chills in twenty-four hours, but they soon increased in frequency and were always followed by profuse perspirations, as in hectic fever. His pulse was always about 110 before, during, and after the chills. On October 23d he had a chill from 3 to 4 A.M., with moist hands, fever, and perspiration; at five he was perspiring copiously, and at eleven was free from fever. On the 24th, at 12½ P.M., he had a chill, which passed off in twenty minutes, followed by a very slight perspiration, and fever which lasted until 5 P.M. At 6½ P.M. he had another slight chill, and at 11 P.M. another, which lasted twenty minutes; at 3½ A.M. a third chill, much harder, which lasted half an hour. At 7 A.M. his hands were hot and face much flushed. He was then very comfortable all day, but had a slight chill at 1 A.M. of the 26th, succeeded by a profuse perspiration, which lasted a very long time. At 3 A.M. a more severe chill, he was more generally cold, lasting twenty minutes and followed by perspiration and fever. On the 27th, a chill for half an hour at 6 P.M., and another slight one at midnight. He was very restless and hot, and rolled about in bed. On the 28th, at 8 A.M., a pretty hard chill, which lasted nearly one hour, and was perspiring freely at 1 P.M. At 5 P.M. a slight chill, but his forehead and hands were moist and warm. He had fever and a great deal of color in his face for one hour, then began to perspire over his body, while his

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hands continued hot and dry. On the 29th, at 4 P.M., a chill lasting forty minutes, and another at 8½ P.M., a third at 11 P.M. At 4 A.M. of the 30th, a succession of chilly feelings. At 5 A.M., the most severe chill he had yet had; his nose was cold and his forehead in a cold perspiration; his legs, feet, and back were very cold. At 10 A.M., a repetition of the chills like those in the night; at 2½ P.M. of the 30th, a slight chill, followed by profuse perspiration during which he slept soundly. At 9 P.M. a chill for twenty minutes, and another at 7 A.M. of the 31st, lasting thirty minutes; was in a profuse perspiration by 10 A.M. At 4 P.M. another chill, a third chill at 7½ P.M., lasting one hour and a half, and a fourth at 10 P.M., continuing for half an hour; was in a perspiration at 11 P.M. On November 1st was chilly twice during the morning, but did not shake as before. At 8 P.M. a pretty severe chill for twenty minutes; was chilly again at 11½ P.M., and almost immediately in a drenching perspiration, lasting for three hours. On November 2d had a chill at 3¼ P.M., lasting twenty minutes, and preceded by perspiration for more than an hour, with unusual languor. On November 3d, at 6 A.M., a chill, not severe, although his legs and feet were very cold, followed by some fever and much perspiration, etc., etc. Finally exhaustion and death occurred.

Autopsy.—There was general peritonitis, with sero-purulent exudation; pus in the mesenteric veins, and the portal vein was hard and filled with lymph and purulent matter. The liver was large, otherwise healthy. The gall-ducts where free. The portal vein alone was diseased, inflamed, and lined with false membrane. There was no pus in the large veins, only in the small ones. It was a pure phlebitis, without any hepatitis.

CASE 3. *Complicated with Strangulation of the Intestine through an Opening in the Mesentery.*

BY DR. CHARLES E. ISAACS, January, 1853.

On the 4th of January, 1853, I was requested by Dr. Blakeman to make a post-mortem examination of a man aged 25, who for some five or six weeks previously had complained of "dyspeptic

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symptoms and occasional attacks of colic." On the 1st of December, while working in his store, he was seized with very severe and griping pains in his bowels, relieved at the time by brandy. He took the next day some Lee's pills, followed by castor-oil, which, however, did not operate until three days after. Dr. Blakeman was called on the 8th, and found him complaining of slight derangement of the stomach, furred tongue, want of appetite, etc., etc. Calomel and rhubarb were given, and operated easily and freely, and gave much relief, and the bowels remained unusually open for several days afterwards. On the 12th the patient felt so well that he went out to visit some of his friends; but the pain in his bowels returned, and he sent for his physician. He found him with pains which he described as very severe and spasmodic, with a feeling of constriction around the abdomen. These symptoms continued, with intermissions, for several days. There was no swelling nor distention, nor any tenderness on pressure, although repeated examinations were made with reference to these points. He could not lie on his right side, and severe dragging pain was felt whenever he attempted to do so. It should be mentioned that, when first taken sick, he experienced a slight *chill;* that he had *four chills in all* during the progress of his disease, and that they were about one week apart. The first was not followed by sweating, but the others were. The *last chill* was on the 25th, lasted one hour, and was followed by the most profuse sweating. Previous to this the patient had sat up and walked about, but, after this occurrence, was entirely confined to his bed. He could sleep only by taking large doses of morphia to relieve his pain. The pulse during the course of the disease was about 80; but, after the last chill, it rose to 120 and upwards, and so continued until his death. With the pain and griping there were *occasionally* nausea and vomiting; but generally the appetite was tolerably good. The skin was usually moist and cool. He had sometimes during his illness passed bloody urine; occasionally it was loaded with lithic acid; it would become clear, and again bloody, etc., etc.

Pyæmia was diagnosed by Drs. Blakeman and A. C. Post, some days previous to death.

Autopsy.—The omentum was very thin, and spread out over the intestines. On raising it up, a large drop of purulent matter

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was perceived, which induced me to make the examination with great care, and it was at length ascertained that the *upper part of the ileum had passed through a rupture or opening in the omentum*, and had become *partially strangulated* by the latter. Above the constriction, the jejunum was very much distended, being nearly as large as the colon; while, below, the ileum was of the usual size. Abscesses existed throughout the mesentery, and purulent matter in its veins. On removing the liver, and laying open the *vena porta*, this vein was found to contain purulent matter. A mass of coagulable lymph and partially discolored blood was tightly adherent to the internal serous lining of that vessel. On cutting across the liver in various directions, pus issued from the cut orifices of the *portal* veins. The hepatic veins exhibited no evidences of disease. The spleen, when cut across, showed various points of purulent matter throughout its substance. The matter from the portal veins, and also that from the spleen, was examined microscopically by Dr. Alonzo Clark, and exhibited, very clearly, globules of pus. Above the constriction, the jejunum was more vascular than natural, and there were some flakes of lymph on its outer surface. The kidneys were not remarkably diseased, but, on pressing on the cut surface of the pyramidal portions, semi purulent matter could be pressed out. Blood was extravasated in small spots under the mucous membrane of the bladder. The other organs were natural. The constriction had been partial, and did not entirely interrupt the passage of substances through the small intestine; but sufficiently to cause obstruction of the intestinal circulation, and consequent inflammation of the portal veins, with abscess.

Case 4. *Thrombosis of the Portal Vein.*

By Dr. Edward G. Janeway, 1869.

Dr. Janeway presented a specimen of thrombosis of the portal vein from a man 47 years of age, who in 1861 had evidences of phthisis, in the shape of hæmoptysis, cough, profuse night-sweats, and emaciation. These disappeared and he regained his flesh and

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strength; but in 1867 these symptoms again recurred and disappeared. In January, 1868, he was attacked with acute articular rheumatism, which lasted until September. Two months after he was again seized with rheumatism, and under the alkaline treatment improvement was marked and rapid; but in June he had a relapse, lasting until the latter part of July, when there was superadded diarrhœa and abdominal pain. In the early part of August ascites developed, and the liver was noted as reduced in size. In August the distention became very great, with splenic enlargement and abdominal pain. Under the use of bi-tart. pot. the ascites disappeared, and in September he was well enough to help around the ward. No further notice was taken of his case until March 11th, when he was seized with chilly feelings, followed by fever, increased frequency of the pulse, dry tongue, and constipated bowels, for two days, when jaundice occurred, accompanied with splenic enlargement and pain on pressure. The abdomen contained a slight amount of fluid. Dr. Janeway saw him on the 17th, and found him jaundiced, tongue dry, somewhat stupid, but with normal pulse and skin. The right side of the thorax was retracted, there was dulness on percussion over the right lung, especially in its upper portion, with coarse and fine râles. The diagnosis of thrombosis of the portal vein was made, and also fibrous induration of the lung.

Autopsy.—The right lung was firmly adherent to the thoracic wall. The upper lobe of the right lung was the seat of fibrous induration with the attendant dilatation of the bronchi, and a small cavity surrounded by cheesy pneumonia. In the left lung were marked evidences of chronic bronchitis. The liver had its surface somewhat wrinkled, and its left lobe was considerably enlarged at the expense of the right. The whole organ was somewhat fatty. The spleen was of a deep blackish color, and weighed four pounds.

The portal vein then was found occluded by a thrombus. This commenced by a tapering extremity at the junction of the superior mesenteric and splenic, and after extending for half an inch it occupied the whole vein, with the exception of a channel capable of admitting a small probe. The thrombus almost filled the vein as far as the bifurcation of the portal into its right and left branches, into the latter of which it tapered to a considerable distance. The small branches were entirely free from clot. The thrombus was

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firm, and of a reddish-gray color. In the middle coat of the splenic vein was a calcareous plate, two inches in length, projecting into the calibre of the vessel sufficiently far to present some obstruction to the current of blood. Besides this, the artery near the point of bifurcation contained a calcareous degeneration. The thrombosis was due to these obstructions, and had possibly commenced when the patient first showed the signs of ascites. The kidneys were fatty. The intestinal mucous membrane was pale, and coated with a large amount of mucus.

Case 5. By Dr. Charles E. Isaacs, 1851.—There was obliteration of the vena porta, from obstruction with cancerous matter.

NOTE ON PORTAL PHLEBITIS AND SUPPURATION OF THE PORTAL VEIN.

A portal vein-trunk and its branches may be bathed in pus, their lumen obstructed by blood-clot, which is more or less altered, and frequently contains pus. Wilks and Moxon say that this is not a frequent form of disease, but many cases have now been recorded. Portal phlebitis, it will be seen, engaged the attention of this Society in the very first year of its existence, and in 1851 it acquired still greater interest in the death of the celebrated surgeon, Dr. J. Kearney Rodgers.

It often arises from some ulceration or suppuration in the field of origin of the portal system. It has sprung from abscesses in the submucous tissue of the rectum, implicating the hemorrhoidal veins, and extending up the inferior mesenteric vein to the portal.

Or the original disease may be in the bowels, gall-bladder, or spleen. The inflammation and suppuration then spread in the continuity of the vein, instead of originating in an embolus. An abscess in the spleen may excite portal phlebitis; or submucous abscesses in the stomach. There are also cases of ulcerative endocarditis, in which particles from the inflamed endocardium have entered the hepatic arteries, as well as the cerebral, splenic, and renal, and caused abscesses in all these organs. The disease of the hepatic arteries may then extend to the hepatic vein, and also along the portal.

Occasionally the suppuration runs along the branches of the vein, from part to part, causing extensive general ramification of suppuration throughout the liver.

Sometimes it arises from perihepatic abscess.

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Report on Portal Phlebitis.

By Dr. Isaac E. Taylor, November 26, 1845.

Phlebitis of the portal and hepatic veins is considered very rare. M. Lambron, in the *Archives Générales de Médecine* for June, 1842, has presented a most complete and unique case of the kind.

Case 6. The patient, a man 69 years of age, of low stature, tolerably muscular, but looking older than he really was, entered at the Hôpital La Pitié, the 4th June, 1841. For some weeks he had suffered from his stomach, with constipation and occasional desire to vomit. To relieve these symptoms he had taken, about a week before, a grain of tartar emetic, without any good resulting. On the day he came to the hospital he was seized with shivering fits and retching, and at night he slept ill. At the morning visit, on the 5th, his pulse was natural, respiration good, but the tongue was white, and he had a disposition to vomit. He complained of constant pain in the right hypochondrium, with exacerbations which he compared to smart cramps; but pressure on this region was scarcely painful. From the 6th to the 9th he had no shivering, but the pains in the hypochondrium were very violent, and greatly exhausted him. There was the same inclination to vomit; pressure on the epigastrium was not painful; constipation still continued. On the 8th the patient suffered more; his skin and the sclerotic had a yellowish tint. On the 11th this became more decided. Up to this time the urine, tested with nitric acid, had exhibited no change, but it now yielded with it a green hue, becoming rose-colored when the acid was added in excess. He was cupped over the liver. On the 13th the pain was less, but the shivering continued with hot-sweat fits. The tongue was now dry, and loaded with a blackish crust; he had hiccough, and the pulse was 96. He passed some green liquid stools. The spleen did not seem to be much enlarged, but, on account of the well-marked paroxysm of fever, three grains of sulph. quinine were administered.

On the 14th, the quinine, which had been taken two days, had in no way checked the fever, which, in all its phenomena and stages,

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simulated a regular intermittent. The hiccough, jaundice, pains in the right hypochondrium, absence of lesion in the other parts of the body, and normal volume of the spleen, indicated *hepatic phlebitis*. The symptoms, though occasionally ameliorating, became increased in severity, and on the 24th the stages of fever became confounded; on the following day there seemed to be no remission.

On the 25th the patient complained of pain, with which he had not been troubled for five or six days before.

On the 26th and 27th the shivering fits and hiccough returned; the fever assumed the remittent type, the pulse became hard and full; a little *crepitant* râle, with a slight blowing sound, was heard at the base of the right lung, and he was much exhausted. A blister was applied to the right side of the chest. On the 28th and 29th he continued to sink. He had some delirium; his pulse was 104, and compressible; and he died during the night.

Autopsy.—Thirty hours after death. All the tissues had a yellowish tint. There was no serosity in the abdomen. The *liver* was of normal size. Its color was deep green or bronze. Its coats presented nothing morbid, excepting the serous, which had at some points adhesions with the peritoneum which covers the diaphragm. The *gall-bladder*, which was full of natural bile, and of the usual size; it also had some adhesions. The *biliary canals* were somewhat dilated. A cut made by accident gave exit to a small quantity of reddish sanies, mixed with small flakes of pus, and upon continuing the dissection it was found to come from the *vena porta*. An incision was made into the vessel, when there issued forth a gush of liquid like the dregs of wine. On following the mesenteric divisions of this vein, a *fish-bone* was found passing through the coats of the trunk of the superior mesenteric vein. It lay imbedded in the head of the pancreas, traversing obliquely from above downward, and from before backward to the anterior wall of the vein, then entering its cavity and penetrating the posterior wall. The length of the bone was about three centimetres, its thickness that of a strong pin, and the end engaged in the vein was twisted into the shape of a corkscrew. The bone seemed to be from a flounder, and had been hardened by salting. At the place where ulceration had been produced by this foreign body, the mesenteric vein had its cavity obliterated by false membranes of a slate-gray color, which adhered to the walls of the vein, and appeared to be united

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in the mass from the mouth of the small veins in the upper part of the jejunum to the orifice of the splenic vein. They became less and less adherent, and finally one of them was found loosely lying upon this opening, so as almost to cover it. Beyond this obliteration the great mesenteric veins were healthy, but for some inches they contained fibro-sanguineous clots. The splenic vein was of natural calibre, consistence, and color, but contained a quantity of the fluid, like dregs of wine, similar to that found in the vena porta.

The trunk of the vena porta was not obliterated, but was puckered by false membranes, slightly adherent to the walls of the veins, which were a little thickened. The portal vein was filled with a mixture of blood and pus. There were no abscesses in the liver; but on a level with the portal sinus there was some softening of its substance, presenting such an appearance as to make it probable that, had the patient survived, part of the organ would have been converted into pus. The subhepatic veins were perfectly healthy, and contained but little blood. The spleen, kidneys, and intestines were normal. There was some hypostatic pneumonia of the right lung, but neither lung presented any trace of an abscess.

Case 7. Phlebitis of a subhepatic vein, occasioned by the neighborhood of a metastatic abscess which opened into its trunk.

On the 18th April, 1841, John Paston, a carter, aged 48, middle stature, pale yellow visage, entered the Hôpital La Pitié. He seemed of weak intellect and eccentric, stating that he wished no medical advice, would take charge of himself, and had only come into the hospital to rest for some days. Upon entering into conversation with him, however, it came out that eight days before, when returning home at a late hour, he was attacked, robbed, and felled to the earth by the stroke of a stick. Since then he had suffered from fever, especially in the evening. Before that he enjoyed good health. There was no trace of wound or tumor on the the head, but slight pressure on the point which had been struck gave him pain. He had an anxious countenance; his general state was bad; pulse 80, and strong; skin rather hot; cheeks red, tongue yellowish; great thirst; appetite capricious, and occasional indigestion; pressure on the epigastrium caused some pain, but no

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tumor could be detected; he sometimes had attacks of colic and diarrhœa; respiration was a little embarrassed, and in part of the right lung there was a crepitant râle, with abundant mucous expectoration. He was bled and put on low diet. On the 19th the state of the lung was better, the crepitant râles less in number and dryness; and the pulse was 80, though less strong. On the 21st there was no improvement, and a blister was applied. On the 22d, at noon, he was seized with shivering, followed by a hot and sweating fit. The spleen was observed to be obviously increased in size. On the 23d the paroxysm of fever again occurred at about the same hour, and he was ordered five grains of quinine, after which the paroxysms of fever ceased; but otherwise there was no other improvement. On the 7th May the fever came on as formerly, the three stages being well marked. On the following days, notwithstanding the exhibition of the quinine, the fever continued, and the sweating and shivering took place at the same time. On the 25th May he had bilious diarrhœa. On the 27th the fever remitted. On the 5th of June he died, exhausted by fever and colliquative diarrhœa, which had continued during the last eight days of his life.

Autopsy.—The inferior lobe of the right lung presented all the characteristics of pneumonia in the second degree. At the pyloric extremity of the small curvature of the stomach there was a cancerous ulcer, which had destroyed the mucous coat over a surface of the size of a two-franc piece. At this place there was a small flattened scirrhous tumor. The rest of the intestinal canal and the other organs were healthy.

The brain presented no lesion. The liver was of normal size, pale yellow in color, and looked greasy. Circumscribed parts of the surface, however, were covered with red points, and contrasted, in a very marked way, with the yellow. They were regularly disposed in such a way as to be evidently caused by the interlobular veins filled with blood; most apparent in the centre of the lobules. To determine why all the lobules had not their interlobular veins congested, the liver was cut into, and the subhepatic veins dissected out, when seven or eight purulent deposits were found in the substance of the liver, the largest of which was as big as a hen's egg. When the liver was cut into, the circumference of the section exhibited the color of the dregs of wine, then became gray-

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ish, on approaching the centre; where the hepatic tissue was altered or replaced by sanious pus, of a red-gray or dirty yellow color. One of these abscesses was situated in the immediate vicinity of the trunks of the subhepatic veins, which join the cava at the place where it is still adherent to the right side of the lobulus Spigelii. This abscess had, by its neighborhood, caused inflammation, and it so invaded the venous trunk as to present, at some lines from its point of junction with the cava, an abscess of about eight millimetres in its greatest diameter; the pus of which passed on easily from the abscess into the vein. The part of the vein comprised between the ulceration and the vena cava was covered with tolerably thick false membranes, which protected the internal membrane from the contact of pus. Above the ulceration the vessel was greatly inflamed, and its calibre obliterated by false membrane and a fibrinous clot; the ramifications of the vein beyond this stoppage were filled with coagulated blood. It was, in fact, a solid injection (embolus), done by nature, enabling us to see, in an admirable manner, the disposition and distribution of these veins.

Case 8. This case shows that if a few only of the hepatic branches are inflamed, the patient may recover, and enjoy passably good health for some years.

Mr. Lawson, consulting surgeon to the Dreadnaught, had in early life been much in India, but returned to England ten years before his death, and was soon after appointed resident surgeon to the Dreadnaught. He continued in this office several years, and then settled in the city. He occasionally vomited, especially after having eaten or drunk more than usual and had occasional fits of gout; but otherwise his health was pretty good, till some months before his death. He had a strong impression that he had some disease of the liver, the result of an acute attack he had had in India; but few of his medical friends thought so. He was stout and cheerful, had no pain in the side, and his complexion was remarkably clear.

Autopsy.—The liver had no unnatural adhesions, and there were no marks of inflammation of the capsule; but its surface was depressed by *deep linear fissures*, on cutting across which, there were found, at some points, small stellar cicatrices of white cartila-

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result of direct communication between the venous system of the liver and that of the body, in consequence of the umbilical vein remaining pervious. He says that in extreme cases it may become the cause of ascites. It is stated also by Dr. Budd that there can be little doubt that the adhesive inflammation, of which so many traces are found in bodies examined in the hospitals—cirrhosis, obliterated portal veins, thickened capsule of the spleen, puckering of the surface of the kidney from obliterated vessels, stricture of the pylorus from contracted lymph, or the submucous areolar tissue, and in many cases adhesions of the pericardium and pleura, are mainly attributable to spirit-drinking.

I trust the Society will excuse me for thus occupying their time so long, but as inflammation of the veins of the liver, and especially the vena porta, are rare pathological instances, and as we have had presented to us at the last meeting an uncommonly fine specimen, I have deemed the subject worthy of being entered into with some detail, and I hope with greater interest given to it from the recital of the above cases.

Report on the Diagnostic Signs of Portal Phlebitis.

By Wm. C. Roberts, M.D., Dec. 23, 1845.

The committee of two, viz., Dr. John C. Peters and Wm. C. Roberts, appointed at the last meeting of the Society to present a report detailing the principal diagnostic signs of phlebitis of the vena porta, respectfully submit:

That in the subject committed to their consideration there are two elements: 1. The symptoms common to phlebitis in general; and 2. Those appertaining to the inflammation of the particular vein and the organs connected with it, viz.: the spleen, liver, and, indirectly and occasionally only, the lungs.

Phlebitis is of two kinds: Sub-acute or adhesive, *i. e.*, tending to obliteration of the vessel; and acute, or that which is attended with the formation of pus within its cavity. In the first, or *sub-acute* variety, there is but slight general indisposition, and little local pain and tenderness; the vein soon becomes firm and hard as if it con-

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tained solid matter, and dropsy of the parts beyond commonly ensues. There is reason to believe, however, that a form of this variety may exist attended with high and sthenic inflammatory action, sometimes, though not necessarily or even generally fatal. Dropsy occurs rapidly, and may or may not subside on the establishment of a collateral circulation. In the acute or suppurative variety, the symptoms are much more severe. The attendant fever is of a typhoid character, depending on the admixture of pus with the circulating fluids, and its deposit on other frequently distant organs, viz.: the liver, lungs, brain, kidney, spleen, joints, serous cavities and muscles; whereby new foci of irritation are created and new pus poured into the general circulation. According to Schoenlein, the typhoid phenomena are peculiar to, and as such, pathognomonic of the suppurative variety. Another peculiarity is the occurrence of *chills* or rigors. They set in without regularity, so as to cause a continued remittent fever to resemble an erratic intermittent. Several chills may occur per diem, sometimes as many as four or five, and sometimes many days may elapse without their recurring. In cases even when the veins of the liver are not inflamed, this organ, and the lungs and the heart, nevertheless frequently take an important part in the characteristics of the disease. There is distention and even pain in the right hypochondrium, bilious coated tongue, bitter taste in the mouth, nausea, and also vomiting, and even icterode coloration of the skin, conjunctiva, and urine, which latter becomes brownish red and often black. These phenomena are the more marked, the nearer the affected vein lies to the liver. The cardiac symptoms consist in signs of inflammation of the right side of the heart, violent pulsation below the ensiform cartilage, severe apnœa, great restlessness, and frequent inclination to syncope. These signs are most marked in inflammation of the veins above the diaphragm. In addition to the above symptoms your committee may mention the occurrence of profuse sweats, and occasionally very unnatural and copious discharges from the bowels.

Your committee now proceed to examine whether symptomatologically the cases reported as inflammations of the portal vein were really instances of phlebitis. They are six in number, viz.: that of Graves, Reynaud, Lambron, Peters and Moses, and Schoenlein's two. Of these, three were suppurative and three adhesive.

In the cases of the suppurative variety, Mr. Lambron's patient at

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first had a natural pulse. The tongue was white, but in the course of a week it became dry, was loaded with a blackish crust; and the pulse had risen to 96. On the occurrence of embolic pneumonia, the pulse became hard and full; in two days after it began to sink, the pulse rising to 104, but being weak and compressible. In Schoenlein's first case there was at first violent fever, with burning heat of the skin, pulse 100, full and tense; urine dark and high-colored; and the tongue had a yellow coating. In the course of the disease the fever moderated for a time, then assumed a hectic character, and strength rapidly and remarkably succumbed. In his second case, the tongue at first had a yellowish brown coating; there was much thirst, and the pulse ranged from 100 to 110, skin burning hot. The fever quickly assumed the typhoid form, the pulse rose to 128, was weak and compressible, the tongue became brown and dry, and the strength failed rapidly. Such is a description of the *fever* in the three cases of the suppurative variety, which have been presented to the Society, and in the opinion of your committee they show that, although at first of a sub-acute or acute sthenic character, it is speedily changed into the typhoid form; thus coinciding with the usual phenomena indicated as belonging to phlebitis in general.

Respecting the *chills*, in the suppurative variety. In Lambron's case, the patient, after suffering with some slight and obscure gastric symptoms, was seized with a shivering fit, which did not return under one week. They then occurred frequently, simulating a regular intermittent fever. They then ceased, to return at the end of another week. In Schoenlein's first case, the patient was seized about the sixth day with a violent shaking chill, which was repeated at uncertain intervals; for on some days several occurred, and on one day as many as three; and at one time they were absent for eighteen days. In his second case, chills did not set in till the fourth week, occurring at irregular intervals, sometimes two daily and lasting more than an hour. She had only one interval of twenty-four hours' freedom from chills, which then recurred and continued daily up to her death; becoming more severe, so that some lasted for twelve hours and recurred again after the lapse of scarcely six more. Here again we notice the characteristic phenomena of *internal suppuration*, which your committee would especially indicate to the Society as a pathognomonic sign of the lesion in question.

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The third point of interest refers to the symptomatic evidences of a deposit of pus in adjacent or distant organs. In Lambron's case, about the twenty-second day, pain in the right side of the chest, cough, crepitant râle, and faint bronchial respiration were perceived. In Schoenlein's first case, no pus-deposits took place in any organ. In the second, there was pain in the region of the spleen at an early date, and this organ was found enlarged, and tender about its hilus. Pain and tenderness were also felt about the region of the liver. About the fifth week of the disease, cough set in, with pain in the chest, and circumscribed crepitant râle was found in several places about the base of either lung. The respiration quickly became oppressed, cough more severe, and the sputa rusty and bloody. These two cases in the opinion of your committee, while they exhibit no evidences of the cardiac affection mentioned by Schoenlein—a fact which may depend upon the non-residence of the pus conveyed into that organ within its cavity—satisfactorily display the common attributes of phlebitis, namely, the development in organs more or less distant from the seat of the phlebitis, of inflammation dependent upon the stasis within them of the products of the venous phlogosis. These stases are well known to the Society under the name of metastatic abscess. The theory of the formation of these abscesses is so well explained by Dr. Budd in his recent treatise on the diseases of the liver, that your committee have thought the passage worthy of being transcribed: "The globules of the purulent matter, mingled with the blood, are conveyed to the capillary vessels of the lungs, and, it would seem, by becoming mechanically arrested there, excite circumscribed inflammation and abscess. If any of the globules pass through the capillaries of the lungs to the left side of the heart, they are sent in the arterial current to other organs, and becoming arrested in the capillaries of these organs, excite, as in the lungs, inflammation of limited extent, rapidly passing on to abscess." If the seat of the suppurative phlebitis happen to be one of the veins that go to form the vena porta, the pus, it is obvious, will be carried first to the liver before it is conveyed elsewhere; and then the abscesses will be found solely, or in greatest numbers, in that organ. The non-occurrence of metastatic abscesses in one of these three cases shows that they are not to be expected in every case of phlebitis; and even when certain bilious symptoms do occur in particular cases, as Schoenlein declares,

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they are not necessarily attributable to the presence of pus in the parenchyma of the liver; but form a characteristic phenomenon of the disease independently of any local lesion, and are therefore of a nature purely sympathetic. In proof of this, in Schoenlein's first case, in which there were no deposits of pus in the liver, the tongue constantly retained a yellow bilious coating; the urine was always dark brown and impregnated with bile; the skin was at first yellowish, and then became of a dirty green; and greenish, brownish, bilious and offensive matters were discharged from the stomach, while the left lobe of the liver became swollen and tender. The value of this observation of Schoenlein's, however, in the opinion of your committee, is in this case diminished by the consideration that it was one of inflammation of a hepatic vein; upon which circumstance the biliary phenomena may in part, if not wholly, have depended.

All the three patients who were the subjects of suppurative inflammation of the portal vein, had profuse and viscid sweats; in Lambron's case there were dark gray fluid stools; in Schoenlein's second case, the stools were of a dark, yellowish brown, mixed with much mucus. Schoenlein remarks that when the disease has lasted from four to six weeks the stools often become black, tar-like, looking as if burnt, and often mixed with blood; and here again your committee would point out the close coincidence of the symptoms of these cases with those described as belonging to phlebitis in general.

The case seen by our fellow-members, Drs. Peters and Moses, was acute in its character; but as the patient was in a state of collapse during the three days that preceded her death, the symptoms indicated nothing pathognomonic of phlebitis; they were simply those of asthenia; but the previous history of the case, jaundice occurring after a fit of passion, fever, the rapid occurrence of œdema pedum and ascites, with the enlargement of the superficial abdominal veins, might have suggested the existence of obstructive disease, both of the vena porta and cava; and that the closing symptoms in some degree depended upon venous inflammation, though obscured by the more immediate existence of a peritonitis.

Your committee believe that the general symptoms are insufficient, in the commencement, to point out with certainty the existence of adhesive phebitis; fortunately, the fatal termination is neither certain nor speedy, and the progress of the case will generally ulti-

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mately lead to an approximative diagnosis. Schoenlein, whose name stands so deservedly high in Germany, and indeed throughout Europe, as that of a most enlightened and accomplished practical physician, and to whom we certainly owe most of our knowledge of the disease which now occupies our attention, asserts that the attending fever is of a peculiarly pungent, burning character—the *causus* of the ancients—and retains its inflammatory nature until the exudation of plastic lymph occurs within the vein; thus sudden distention and swelling of the spleen sets in, because its blood cannot return back through the obstructed portal vein. Thus, in a few days the spleen may reach the median line and extend downward almost to the ilium. The enlargement of the spleen, even when not sufficient to appear beneath the ribs, may still be detected on careful percussion.

Profuse hemorrhages, also, are apt to occur from the bowels after the lapse of ten or twelve days, depending also, as will readily be seen, upon obstruction of the trunk of the vena porta. The blood may pass off in large quantity from the intestines, and all the signs of collapse from the loss of blood ensue. The superficial veins of the abdomen also become enlarged and serpentine, in the endeavor to establish a collateral circulation—facts remarkably exemplified in the more chronic cases of Stokes and Reynaud, and to some extent in the acute case related by Drs. Peters and Moses. Your committee will take this opportunity of stating that, in Dr. Watson's *Lectures on the Practice of Physic*, two cases of venous obstruction, attended with the development of this supplementary circulation on the superficies of the chest and abdomen, are related, and diagrams given illustrative of the fact.

Having pointed out the phlebitic nature of the cases of portal venous inflammation reviewed by your committee, they proceed to exhibit the local phenomena, in each variety, which may lead to the location of the disease in the particular vessel in question. These are, according to Schoenlein: pain in a point midway between the navel and ensiform cartilage, occurring spontaneously; occasionally becoming exceedingly severe; increased by pressure, and extending often along the track of the veins of the spleen on the one side, which organ may be found tender; and along the course of the veins towards the liver on the other side, which may also be found puffy and sore; and at times reaching even backward

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towards the spine. The pain in the adhesive variety is dull and aching; and in the suppurative, severe, burning, and gnawing. In Lambron's case no mention is made of this central pain, but there was constant pain in the right hypochondrium, with exacerbations, which the patient compared to smart cramps in the bowels.

Jaundice is apt to occur at an early period: in Lambron's case, which was subacute in its nature, in the course of a few weeks; in Schoenlein's first case, in the course of a few days; in his second case, a few hours after a severe fit of anger and vexation—a mode of origin common to several cases of this kind, among others that of Drs. Peters and Moses, in whom the jaundice displayed itself also immediately. In the case mentioned by Andral in the *Clinique Médicale*, the patient, after laboring some time under symptoms of fever and gastro-enteritis, was attacked with pain and tension in the region of the liver, followed by jaundice. Reynaud's patient labored for more than twelve months under jaundice, accompanied by wasting of flesh and prostration of strength. He had constant pain in the epigastrium, and swelling of the feet—symptoms which, as Stokes remarks, would have generally been regarded as those of chronic hepatitis. To these evidences of hepatic disorder may be added the frequent presence of a bitter taste, a yellow-coated tongue, loss of appetite, hiccough, nausea, and vomiting; more or less vitiated bilious discharges from the bowels, and the presence of the coloring matter of the bile in the urine; pain, tenderness, and in some cases swelling in the region of the liver. In the patient seen by Drs. Peters and Moses, after the lapse of several months the skin still retained an icterode hue, and the evacuations were dark green and bilious.

Obstruction of the vena porta leads almost necessarily to abdominal dropsy. It existed in the cases seen by Drs. Peters, Moses, and Reynaud, both of which were examples of the adhesive variety. In those of the suppurative form reported by Schoenlein and Lambron this did not occur—a fact which is of importance in the distinctive diagnosis of these two forms of phlebitis. We may remark, in passing, that in Reynaud's case there existed emaciation, coupled with canine appetite; and Graves, in cases supposed to be of this kind, not verified, however, by post-mortem examination, has observed the same thing; leading to the inference that the mesenteric and other abdominal veins take part in the process

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of absorption of the nutritive elements of the food from the intestines.

Such are the evidences which your committee have to exhibit, leading to the inference that these, and all other similar cases of phlebitis, are in reality cases in which the veins of the liver were the seats of the particular lesion. In those cases (Reynaud's) in which anasarca has coexisted with the other symptoms, the cause has been found in the extension of the inflammation to the vena cava.

Your committee feel bound to remark that, while these prominent bilious symptoms attend upon the disease at its acme, some may be absent at its commencement; thus, the tongue may be at first white, and only become yellow at a later period. The bilious diarhœa is usually preceded by constipation.

Lambron's patient was 69 years of age; Drs. Peters and Moses', 32; Schoenlein's, 33 and 26 respectively. Of the five cases in which the *sex* is given, three were males and two females.

The most important results developed by the preceding report your committee have endeavored to embody in the following corollaries:

1. Phlebitis is of two kinds: acute, subacute, or adhesive; and acute or suppurative. In the first variety usually the symptoms, general and local, are of less intensity. In the second they are much more severe; the fever is of a *typhoid* form—only, according to Schoenlein, met with in this variety, of which it is, therefore, pathognomonic.

2. According to the same authority, the local symptoms are the same in both, but the febrile reaction and mode of death differ. In the adhesive form the early diagnosis is difficult, if not impossible, and at a later stage only approximative.

3. That chills always, and only, occur in the suppurative variety, causing a remittent form of fever, which is the natural type of the disease, to resemble an *irregular or erratic intermittent*; and are therefore markedly indicative of the true nature of the case.

4. That the six cases examined by your committee were instances of phlebitis, is shown by the accordance of their general symptoms with that disease, not less than by the post-mortem examinations. Three were of the adhesive and three of the suppurative variety.

5. That in the suppurative variety symptoms of hepatic, splenic,

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pneumonic, and cardiac disease generally display themselves, and depend upon the deposit of pus, by metastasis, in these parenchymatous viscera; but this does not invariably happen, nor always depend upon the presence of transported pus when it does.

6. That bilious phenomena may occur in general phlebitis, from this cause, without an inflammation of the veins of the liver necessarily existing; or, they may depend solely upon this latter cause, in the absence of purulent deposits in the hepatic parenchyma.

7. That certain symptoms, such as pain in the middle point between the navel and ensiform cartilage, increased by pressure, extending along the tracks of the splenic vein and those of the liver, differing in each variety; or the pain may be in the right hypochondrium alone. Jaundice is frequently a primary symptom, and may arise after fits of passion. A bitter taste in the mouth, a yellow-coated tongue, vitiated biliary discharges, a bilious tinge of the urine, and dropsy in the adhesive variety only, are the local signs which point to the existence of phlebitis in some hepatic vein; although, for reasons previously assigned, these are not in every case characteristic, nor uniformly present in the commencement of every case.

8. That it is only in cases where plastic lymph is effused into the vein that the distention of the superficial abdominal veins occurs; and that neither this nor the enlargement of the spleen, with which it is so often associated, are pathognomonic of portal phlebitis, but may depend upon obliteration of other large abdominal venous trunks.

9. That the fever of phlebitis in general is, in both varieties, of the burning, pungent kind: in the adhesive, retaining its inflammatory character until the exudation of plastic lymph occurs; in the suppurative soon assuming the *torpid, typhoid character;* to which variety, also, the chills and metastatic abscess are peculiar.

10th and lastly. That profuse and viscid sweats are among the distinctive evidences of suppurative phlebitis.

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Report on Phlebitis of the Vena Porta.

By Dr. Wm. C. Roberts.

The specimen of inflammation of the vena porta which Dr. Peters and Dr. Moses exhibited to us at the last meeting, is, although it did not appear to excite very great attention, nevertheless a very rare one. I think there are very few instances of the kind on record, and the disease posesses great interest in a pathological and practical point of view. There is a case in the *Clin. Méd.* of Andral, in which the patient, after laboring for some time under symptoms of fever and gastro-enteritis, was attacked with pain and tension in the region of the liver, followed by jaundice. On inspection, marks of inflammation were found in the stomach and ileum; there was also disease in the colon; and the liver was found to be enlarged and presented the ordinary marks of inflammatory action. On a more minute examination, nearly all the mesenteric veins and the trunk of the vena porta were discovered to be in a state of intense inflammation; while on the other hand, the lining membrane of the vena cava was found to be in its normal and healthy condition. In this case the disease of the liver appears to have been caused by that of the vein—a fact interesting in pathology; for the symptoms of chronic hepatitis may, it appears, be due to chronic phlebitis of the vena porta, terminating in its obliteration, as well as that of the cava itself. In such cases, nature generally makes an effort to keep up the venous circulation. In consequence of the obliteration of the internal abdominal veins, the external ones become enlarged and produce a supplementary circulation to a certain extent, and in this way life is prolonged. The particulars of the case given by Reynaud are quoted by Dr. Stokes in his Clinical Lectures as follows:

The patient labored for more than twelve months with jaundice; accompanied by wasting of flesh and prostration of strength for eight months. He was not confined to bed, but had constant pain in the epigastrium, and swelling of the feet. At the end of the eight months he became bedridden, and the large superficial veins of the abdominal surface (viz., the epigastric, etc., which ascend to anastomose with the thoracic, intercostal, and axillary veins) began

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to enlarge. He also had canine appetite, a fact which tends to throw some light on the share the mesenteric and other abdominal veins have in the process of absorption; the same being observed in tabes mesenterica. From this cause he suffered from repeated attacks of constipation and colic, and had diarrhœa, and finally dropsy. The bulimia and the enlargement of the superficial veins led to an accurate diagnosis in this case; but Reynaud was unable before death to explain the infiltration of the lower extremities, as the early swelling of the feet rather indicated obstruction in the general venous circulation.

Autopsy.—It was found that the right branch of the vena porta had been obliterated by the growth of a yellow substance, somewhat like the middle coat of an artery; the same was found to exist in the corresponding hepatic veins; *and the inferior vena cava* was obliterated to the distance of three inches from the left auricle. The left branch of the vena porta was pervious. The corresponding hepatic veins were much enlarged, and the superficial epigastric veins inosculated freely with the intercostal and axillary veins. The vena azygos was very much dilated; and, what is curious, a large vein was seen to arise from the union of the subperitoneal branches on the convex surface of the liver, then passed through the diaphragm and emptied itself into the vena cava close to its termination; forming a new vein. The subdiaphragmatic veins were much increased in size, and apparently varicose; they passed through the diaphragm and inosculated with the pericardial and superficial thoracic veins; some of which ran up and opened into the great coronary vein of the heart, which was as large as the crural vein. The remaining peculiarities were inflammation of the duodenum and gall-bladder, the cavity of which was half filled with purulent fluid. Dr. Stokes thinks such cases not rare.

This is all the information I possess on the subject. No notice of it is contained in Cruveilhier's great work.

Report on Phlebitis of the Splenic Vein and Vena Porta.

By Dr. John C. Peters, First report, in 1845.

Inflammation of the vena porta has been thrice observed by Bouillaud, twice by Reynaud, once by Dance, and once by Bolling.

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Andral has recorded the post-mortem appearances of several cases not observed during life; Cruveilhier gives a plate of one. But the disease was never diagnosed during life until July, 1840, by Schoenlein, of Berlin. In the winter of 1842 he recognized a second case during the life of the patient. Since that period the subject has attracted much attention in Germany; the journals now report cases of it every now and then; and several monographs have been published, among which those of Mohr, and Baczynski, Kaether, Sander, and Messow are the best.

Schoenlein, during his long service in the Julius Hospital, at Würzburg, and the Charité of Berlin, had witnessed eight or ten cases, but had never succeeded in diagnosing any of them during life.

In May, 1840, a young man entered the Charité Hospital, after being sick a few days without known cause: he complained of violent pain in the epigastrium, on a line with the linea alba, between the umbilicus and ensiform cartilage, and increased by motion. The abdomen was soft, the tongue had a yellow coating; there was extreme thirst, loss of appetite, intense fever, burning hot skin, full hard pulse of 100 beats per minute, and dark, flaming red urine. The case was regarded as one of peri-enteritis; but on the third day a *violent shaking chill* set in, followed by fever, but not by critical discharges from the skin and kidneys. These chills were repeated at uncertain intervals, and sometimes as many as three a day occurred. It was then that Schoenlein called the attention of his class to the aphorism of Hippocrates: "that when a chill sets in on the sixth day of a continued fever, the case almost always terminates fatally;" and stated that the majority of cases of so called "ERRATIC INTERMITTENT FEVERS" depend upon phlebitis, frequently of the vena porta.

Bilious symptoms now began to appear, the tongue retained its yellow coating, the urine became dark brown, as if from admixture with bile; the stools were darkish brown or blackish, and the skin assumed a yellowish tinge. The aching pain between the navel and ensiform cartilage still continued; the fever took on a very irregular, hectic character, the chills sometimes occurring several times a day, then were absent for two or three days, and at one time for eighteen days. His strength succumbed in a rapid and remarkable manner, and the skin became of a dirty greenish hue. Thus seven weeks rolled on, when the abdomen began to swell, and

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the epigastrium became more sensitive to the touch; obstinate vomiting set in, of greenish and afterwards of brownish stinking matters; the spleen and left lobe of the liver swelled; delirium was present during the last forty-eight hours, and the patient died after two months' suffering.

Autopsy.—A small portion of the small intestine was adherent to the mesocolon, exactly in the median line between the umbilicus and ensiform cartilage; and a small abscess, of the size of a two-shilling piece filled with thick pus, and surrounded with thick and callous edges, was seated within the adhesions. A short, fistulous passage led directly from this abscess, behind the peritoneum to the vena porta; the trunk of which was very much dilated and filled with pus of a dark yellow color, apparently from admixture with bile. All the ramifications of the vein were filled with pus, and its internal coat was thickened and velvety. The spleen was twice its natural size, and filled with dissolute blood.

Schoenlein remarked, that to his knowledge *this was the first case* which had ever been diagnosed during life. He had witnessed several examples of two varieties, the one attended with effusion of plastic lymph and followed by obliteration of the vein; the other with formation of pus within the vein. The local symptoms are the same in both varieties, but the general symptoms differ. There is constant, dull, aching pain in both, midway between the umbilicus and ensiform cartilage, increased by pressure and often extending back towards the spinal column. In the suppurative variety the pain may become burning and gnawing. The abdomen is not distended, or tense for a long time, perhaps not at all. Bilious symptoms set in, viz.: bitter taste in the mouth, yellowish coating of the tongue, nausea, and vomiting; the bowels are constipated at first, but afterwards diarrhœa sets in; and actual blood may be discharged, as some cases of melæna depend upon inflammation of the vena porta. Both varieties are attended with a peculiar fever, the so-called *causus* or burning fever of the ancients, in which the heat of skin is pungent and burning. The inflammatory fever persists in the first variety, but changes to a torpid character in the suppurative. In this latter, the fever has a continued remittent type; but *irregular chills* set in, sometimes as many as four or five per day, so that it then resembles a so-called *erratic intermittent* fever, which persists until death ensues. The

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signs of an affection of the liver and spleen become prominent; there is pain in one or both hypochondriæ; the spleen enlarges, and is tender to pressure; then nausea and vomiting set in, and bilious and brownish masses are ejected. The urine takes on a bilious tinge. If the vein becomes obliterated by coagulable lymph, the superficial veins of the abdomen enlarge very much. Rapid swelling of the spleen ensues, as its venous blood can no longer return into the portal circulation; and in a few days it may even reach to the median line of the abdomen, and downward towards the ilium. All the usual signs of an affection of the spleen also present themselves, viz.: vertigo, dimness of vision, hemorrhage from the left nostril, sour taste in the mouth, acid eructations and vomitings; and, after the lapse of ten or twelve days, profuse hemorrhages from the bowels, attended with great exhaustion, etc. Frequently the signs of depositions of pus in the liver present themselves, and pus is also often absorbed into the circulation and deposited into the lungs, occasioning cough, pain, increase of fever, etc., and marked by the presence of crepitous rattle in one or more, or a dozen circumscribed parts of the lungs.

In July of 1842, Schoenlein mistook a case of abscess in the lower surface of the liver, attended, however, with inflammation and formation of pus in several of the hepatic veins, and absorption of pus in the circulation, and numerous circumscribed depositions of pus in the lungs, for one of these cases. To add to the similarity of the diseases, there was dilatation of the vena porta and splenic vein, and enlargement of the spleen; but these parts, especially the veins, were otherwise quite healthy.

In the winter of 1842, however, he succeeded in diagnosing a second case; it occurred in a young man, and was at first regarded as bilious fever, but the presence of severe pain in the median line, between the umbilicus and ensiform cartilage, and extending from thence towards the spleen on the one side and the liver on the other, with tenderness over the seat of these organs and along the course of the splenic vein and vena porta, excited Schoenlein's suspicions as to the true nature of the disease; he was confirmed by the occurrence of *irregular and severe chills*, followed in some days by signs of irritation about the lungs, and evidences of numerous patches of circumscribed inflammation in them. He predicted the

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presence of inflammation of the vena porta, depots of pus in the spleen, liver, and lungs; and these predictions were abundantly confirmed by the post-mortem examination.

Second Report on Inflammation of the Vena Porta.

By Dr. John C. Peters.

Inflammation of the vena porta having excited great attention at the last two meetings of the Pathological Society, I have taken the liberty of translating the records of two cases of this disease, occurring in the practice of Schoenlein at the Berlin Charité Hospital. The first case is one of much moment, as Schoenlein claims for it the high honor of being the first instance in which this disease was successfully diagnosed during the life of the patient.

Case 1. July 31, 1840. Frederick Elwers, æt. 26, saddler, a young and powerful man, entered the hospital two months ago, having been sick for a few days, without known cause. He complained of violent pain in the epigastric region, along the linea alba, between the umbilicus and ensiform cartilage; the pain was increased by pressure, and its locality varied somewhat according to the position of the patient; violent diarrhœa was present, but the patient had taken emetics and cathartics before he entered the hospital; the abdomen was soft, the tongue yellowish, the thirst intense, and appetite entirely gone. He had violent fever, with burning heat of the skin; full, tense pulse, 100 per minute; the urine dark and high-colored. Schoenlein regarded the case as one of circumscribed peritonitis, and ordered general and topical bloodletting, fomentations to the abdomen, and an emulsion of aqua laurocerasi. Under this treatment the local symptoms abated, and the pulse fell to 84; but on the third day a violent shaking chill set in, lasting a quarter of an hour, followed by fever, but not by critical sweat or urine.

Schoenlein remarked at this early stage of the disease, that most physicians would conclude that the case was one of remittent fever, which was about terminating in an intermittent; but advanced the

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supposition that the inflammation had extended to the veins, and that in all probability the vena porta would become the focus of the disorder.

The chills were repeated at uncertain intervals; on some days several occurred, and on one, three; the fever persisted in a moderated degree, and the patient complained most of want of appetite; the tongue constantly retained its yellow coating; the urine was dark brown and bilious; the skin of the patient was yellowish; colic pains set in, and soon ceased, but the aching pain between the navel and ensiform cartilage persisted; where there was a hard point, particularly tender. Regarding the case as one of inflammation of the vena porta, Schoenlein continued the antiphlogistic treatment, and added mercurial inunctions, with the internal use of calomel.

The fever persisted; chills still recurred at very uncertain intervals, and at one time were absent for eighteen days; the fever assumed a hectic character, and the strength succumbed in a rapid and remarkable manner. The skin became dirty greenish, the urine retained its dark, bilious character, became turbid at times, and deposited sediments, but did not become clear afterwards. Thus the patient dragged on for seven weeks, when the abdomen became tympanitic and more sensitive to touch; vomiting set in, and could not be allayed; finally greenish and brownish stinking matters were cast up; the spleen and lesser lobe of the liver swelled, the fever increased, and during the last forty-eight hours delirium set in, from which the patient did not arouse, and thus died after two months of suffering.

Post-mortem.—Slight injection of the peritoneal coat of the transverse colon; behind this there was a portion of the small bowel, directly in the median line between the navel and ensiform cartilage—hence, at the very spot where the pain was felt during life—which adhered to the mesocolon and enclosed a small abscess the size of a shilling, filled with thick pus and having hard, thick walls. From this abscess a short passage led behind the peritoneum directly to the vena porta, the trunk of which was considerably enlarged and filled with dark yellow, bilious pus. The vein, throughout its whole course and every one of its ramifications, was filled with pus; its internal coat was thickened and velvety. The parenchyma of the liver was intact; the spleen was double its natural size; the lungs and heart natural.

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Schoenlein remarked that his diagnosis had turned out truly; there had been a circumscribed peritonitis at the place where the abscess had been found, and from thence the inflammation had extended to the vena porta in like manner, as inflammation of the superficial veins occurs in ulceration of the leg.

Schoenlein referred his students to Hippocrates, who states in the twenty-ninth Aphorism of his fourth Book, "that those who suffer with inflammatory fever, and are attacked with chills on the sixth day, rarely recover." This observation gives us the phenomena, but without their internal cause. Schoenlein stated that in his experience the majority of such cases depended upon inflammation of a vein; all that he knew of the diagnosis of vena porta inflammations was based upon his own observations. He had seen two varieties, one characterized by the exudation of plastic lymph in the vein, the other by the formation of pus. Whoever expected to find typhoid symptoms in all cases would be often mistaken; when plastic lymph alone exuded from the internal surface of the vein, there were no typhoid symptoms, but only in those cases where pus was formed within the vein. The local symptoms are the same in the two varieties, but the febrile reaction is different, and the mode of death varies.

The *local symptoms* are: pain in the middle point between the navel and ensiform cartilage; a dull aching pain, occurring spontaneously, increased by pressure, and often extending backward towards the spine, occurs in the first variety; in the suppurative form, the pain is burning and gnawing.

Among the general symptoms are some which point to an affection of the biliary organs, viz., bitter taste, yellow coated tongue, entire loss of appetite, nausea and vomiting. At first there is constipation, which is soon followed by diarrhœa. Schoenlein had seen pure blood discharged, and believed that some forms of melæna depend upon inflammation of the vena porta.

From bilious fever, and from hepatitis, this affection is distinguished principally by the peculiar pain in the median line between the sternum and navel.

Fever occurs in both varieties; it is a peculiarly pungent, burning fever, the *causus* of the ancients, which Aretæus, and especially Stoll, pointed out as characteristic of bilious fever. In the first form, the fever retains its inflammatory character until exudation

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of plastic lymph occurs. In the suppurative variety, it soon assumes a torpid, typhoid character; the chills too are peculiar to the suppurative variety; they occur without regularity, so as to cause a continued remittent fever to resemble an erratic intermittent; several chills may occur per day, and on some days as many as four or five. The suppurative fever persists until death; the hepatic and splenic phenomena become more marked, the spleen becomes enlarged, and the left hypochondrium becomes sensitive to pressure; nausea and vomiting set in, by which bilious, brownish matters are cast out; the urine is colored with bilious pigment.

But if plastic lymph be effused into the vein, the superficial veins of the abdomen become enlarged and serpentine; sudden distention and swelling of the spleen sets in, because its blood cannot return back through its vein; in a few days the spleen may reach the median line of the body, and extend downward almost to the ilium. The symptoms of a splenic affection also set in, viz.: vertigo, darkness of vision, bleeding from the left nostril, sour taste in the mouth, acid eructations and vomiting; after the lapse of ten or twelve days, profuse hemorrhage occurs from the bowels, the blood passes off in quantities, and all the signs of collapse from loss of blood ensues. The most interesting case of this kind I [Schoenlein] ever witnessed occurred in Wurzburg; it occurred in the person of a young baker; death ensued in a few weeks; all the veins of the portal system were obliterated. The preparation was presented to the Pathological Museum at Zurich; and a young Pole, named Baczynski, made this case the subject of an inaugural dissertation in 1838.

Case 2. July 1, 1842. Caroline Schultz, æt. 33, had never been sick until five weeks before entering the hospital; then, after a violent fit of anger and vexation, was seized with intense gnawing pain in the liver and right shoulder, constant nausea, vomiting, and jaundice; the urine became thick and black as ink; constipation. Under medical treatment the jaundice disappeared, but pain in the left side in the region of the spleen occurred with profuse bleeding from both nostrils. During the fourth week chills set in at irregular intervals, sometimes two a day, and lasting more than an hour.

At her entrance into the hospital the patient was much emaciated; the skin had a dirty yellow tinge, not jaundiced, but more chlorotic; she had pain in the abdomen, which was soft and somewhat distend-

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ed; the spleen was found enlarged, soft, and tender about its hilus, from whence pain and tenderness extended towards the median line, and was most severe midway between the navel and ensiform cartilage; from thence pain and tenderness extended in a moderated degree towards the inferior surface of the liver, where the vena porta enters it. There was no swelling of the liver, but pain in the right shoulder.

The tongue had a yellowish brown coating, the taste pasty, no appetite, much thirst; dark yellow stools with much slime; the urine dark brownish.

There was fever, the pulse ranging from 100 to 110; the skin burning hot; at times dry, at others covered with viscid sweat.

Schoenlein remarked to his class that one part of the disease would not require one to break his head in order to form a diagnosis, viz., the signs of inflammation of the lower concave surface of the liver and spleen; but whether there was inflammation of the porta was not quite clear, although probable; and if present, it had already proceeded to suppuration.

July 2d the patient was seized at night with a shaking chill, lasting an hour, her limbs trembled, and the pulse was hard; fever followed, but was not succeeded by critical urine or sweat. Schoenlein remarked that when the disease lasted four to six weeks, the stools generally became black, tar-like, as if burnt, and mixed with blood; if this were the case with this patient, he would have no further hesitation about the diagnosis.

Under the use of mercurial frictions and aqua laurocerasus, the pain about the median line moderated, the tenderness about the spleen lessened, and this organ diminished in size, but the tenderness and pain about the liver increased. She had an interval of twenty-four hours' freedom from chills, but then one set in and lasted a whole night; in the afternoon another followed and lasted several hours; shortly after another happened, in presence of the class; it was peculiar, for while the patient was overcome with the feeling of cold, and her teeth chattered and her hands trembled, her skin was intensely burning hot; no crisis followed, and Schoenlein remarked that most cases of erratic fever and ague depended upon phlebitis, and were very fatal. On the 4th of July a slight cough, which had troubled the patient for a few days, became more severe, and circumscribed crepitant rattle was found in several places at

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the base of the right lung. Schoenlein suggested that this condition of the lung doubtless depended upon the deposit of purulent matter in the lungs, and was a part of the phlebitis. On the 5th and 6th of July chills again set in at night; on the 6th the pneumonia had increased, the respiration was oppressed, the cough more severe, and the sputa rusty and bloody. The fever assumed a more typhoid character, the pulse rose to 128, the brown tongue became more dry, the hot skin was covered with sticky perspiration, and the strength succumbed. The chills occurred every day up to the 11th, when she died; some of the chills lasted twelve hours, and recurred after the lapse of scarcely six hours.

Post-mortem.—The spleen was twice its natural size, unusually soft and flabby; the splenic veins were much dilated, their walls reddened, thickened, and velvety, but they contained no pus. The whole tract of the vena porta was in the same condition. The liver was very flabby, its anterior portion and left lobe were in a state of commencing cirrhosis. The hepatic and cystic ducts were dilated almost to the size of a small intestine, and filled up with a gall-stone; but bile could easily flow past it. The vena cava was normal. One hepatic vein in the upper portion of the right lobe, for a space of four inches, was reddened, its internal surface coated with exudation, and contained a coagulum enclosing pus. Not far from this there was an abscess in the liver, the size of a hen's egg. Both pleuræ had a coating of lymph; a few ounces of reddish serum in each pleural sac; depots of pus in both lungs—more than a dozen in the right, from a pea to a walnut in size, and surrounded by inflammation.

Schoenlein asked in how far was his diagnosis sustained by the post-mortem appearances.

He thought that the inflammation of the porta had been moderated, but not cured, by his treatment; from thence had extended to a hepatic vein, for Bertin and Dance have injected the hepatic veins from the vena porta. He believed that the abscess in the liver was a metastatic abscess, and about those in the lungs there could be no doubt.

Schoenlein said Andral had given the post-mortems of several, but no diagnosis.

Cruveilhier also gives a post-mortem description of one.

Stokes has given a case of adhesive inflammation of the porta.

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Rokitansky has frequently met with partial obliteration of the portal veins within the liver.

Mohr, of the Julius Hospital, has described a case, in a girl æt. 17, who was supposed during life to have an erratic fever and ague.

Four of Schoenlein's students have written theses upon this disease, viz.: Kaether, Sander, Baczinsky, and Messow. Messow has given a detail of all the known cases of this disease.

Bouillaud has given three cases in *Archives Générales* for June, 1823.

Reynaud has detailed two cases in the *Revue Médicale* for 1839.

Dance, one case.

Bolling, one case.

Fezian, one case of inflammation of the hepatic vein.

Finally, Dr. J. C. Peters furnished a short review of Messow's work on portal phlebitis, and a reference to two more cases of this disease, in the German Yearly Retrospect of Collective Medicine, by Drs. Canstatt and Eisenmann.

Messow's work contains the report of twelve cases.

1. One by Schoenlein, not diagnosed during life, observed in Wurzburg in 1828, the subject of a thesis by Baczinsky in 1829.

2. One observed and described by Mohr, physician to the Julius Hospital of Wurzburg, in July, 1840.

3. One by Dance, in the work of Dance and Anott, on phlebitis.

4. By Aullier, in the *Journal Hebdomadaire*, Feb., 1830.

5. In Cruveilhier's Pathological Anatomy.

6. By Bolling, of Wurzburg, in a monograph on phlebitis, 1829, founded on Schoenlein's case.

7. By Stokes.

8. By Reynaud, *Journ. Hebdom.*, No. 51. p. 171.

9 and 10. Cases by Andral (see Clinique).

11. By Meckel.

12 and 13. By Schoenlein, in 1840.

Messow distinguishes an acute and chronic form, both of which have a primary inflammatory stage; but the first has its second stage in suppuration, the latter in exudation of plastic lymph.

The *exudative* variety is less malignant than the suppurative, and when fully formed is marked by the enlargement of the superficial veins of the abdomen, and in particular by pulsations which

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occur in consequence of the obstruction at the vena porta, not only in the abdomen, but also in almost every part of the body.

The *suppurative or typhoid* variety is marked in particular by *chills* occurring without any particular order or regularity.

The *chronic* variety differs from the acute only by its slower course, and by the inflammatory stage passing over very unobtrusively, so that the second stage may be fully formed before the physician gets his eyes opened to the nature of the case.

Some stress was laid on the presence of pain in the median line between the ensiform cartilage and umbilicus.

During the year 1845, two cases more of portal phlebitis were reported. In the first, by Dr. Deutz: A military convict was taken sick with gastric symptoms, burning hot skin, acute inflammatory fever, abdominal pains which concentrated themselves between the sternum and umbilicus, yellow tinge of the skin, shaking chills, rapid sinking of strength, and finally, delirium and sopor; death took place at the end of the sixth week.

Autopsy.—Vena porta surrounded by exudation of lymph; contracted, and containing serous, yellowish gray pus. Some branches were perfectly obliterated. In the lobulus quadratus there was a depot of pus of the size of a walnut; and in the right lobe there was a number of pus-points of the size of a hemp-seed. The spleen was enlarged and fragile.

2. Gintrac's case was a man aged 45, who died with signs of ascites. The symptoms are not given, but it seems to have been a chronic case of the adhesive variety; the vena porta was filled with a coagulum which seemed very old, and firmly adherent to the internal surface of the vein. There were also several plates of bone in its walls, and all the veins of the abdomen which emptied into the porta were very large and varicose. The spleen was enlarged.

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